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Early Start Recommended on Victoria Line

IF the Government agrees to expenditure of £55 million on construction of the 11½-mile Victoria Line (the former Route "C") of London Transport Executive, and makes the money available, construction can be completed within six years. Last week the report was issued of the London Travel Committee, which, under the chairmanship of Mr. Alexander Samuels, was required to examine not only the scope of, and feasibility of constructing, the new tube, but also to recommend to the Minister any measures considered desirable for the relief of peak traffic congestion in central London which the Committee was itself unable to initiate. Details of the proposed line have been published in this journal, in our February 18, 1955, and other issues. Briefly, it is to run from Walthamstow Wood Street (interchange with the Chingford line, now being electrified, of British Railways, Eastern Region), to Victoria. The 11 intermediate stations include Tottenham (Hale) and Seven Sisters (both with interchange with the

Eastern Region), Highbury (interchange with the L.T.E. Northern City Line), Warren Street (Northern Line), and Green Park (Piccadilly Line); also service of the existing interchange stations of Finsbury Park, Kings Cross & St. Pancras, and Oxford Circus. Another useful feature of direct interest to British Railways is the link afforded between the Southern Region at Victoria and the three northern termini: Euston, St. Pancras, and Kings Cross. The importance of such access between termini will grow as main-line traffic there increases, and, presumably, as travel through the streets is complicated by increases in traffic. It is over ten years since the London Plan Working Party recommended building of the tube, and five since Parliament sanctioned its construction. The London Travel Committee recommends that construction be begun as quickly as possible. Emphasis on the relief afforded by the new underground line to street traffic congestion may incline the Government to authorise expenditure which is not great compared with the advantages to be gained. With fares at their present level the Victoria Line would lose £2,500,000-£3,000,000 a year. This would not be a big item in relation to the total receipts of L.T.E. in 1958—some £75,000,000, of which nearly £26,000,000 was derived from the Underground. Of the £55,000,000 estimate for the new line, £4,500,000 is for rolling stock of standard tube type, and £7,400,000 for electrical, signalling, and other equipment.

Mr. Charles Cock

AFTER a varied career on railways and in engineering, which has embraced Australia, India, and Great Britain, Mr. Charles Cock has retired from his most recent appointment of General Manager, Traction Department, of the English Electric Co. Ltd. He has always been closely associated with railway electrification and more latterly with diesel-electric traction. A summary of some of the principal work he has done is given elsewhere in this issue, but of particular note have been his services with the Great Indian Peninsula Railway, of which he was Divisional Superintendent immediately before he came to England to take up the position as Chief Electrical Engineer on the Southern Railway. When the Railway Executive was formed Mr. Cock served as Chief Electrical Engineer to that body before joining the English Electric Company. As well as being a former President of the Institution of Locomotive Engineers, he has also served as Chairman of the Supply Section of the Institution of Electrical Engineers, and has contributed several valuable papers on electric and diesel-electric traction. In retirement he will find other fields for his activities, for he has been appointed a Deputy Chairman of Brooke Marine Limited.

Informing the Public

THE Yorkshire area of the Transport Users' Consultative Committee, like its counterparts throughout the country, is legally bound to meet quarterly. During the past year, it has met nine times. Six meetings have taken place since September. The latest, on December 16, represented a complete departure from normal practice, under which users' questions are answered by the railway officers concerned. At this meeting, a review was given of development planned during 1960 in the North Eastern Region of British Railways. A series of talks by senior officers was initiated by Mr. F. C. Margetts, Assistant General Manager (Traffic), who outlined the overall plan. Mr. C. A. Haygreen, Planning Assistant in the General Manager's Office, spoke on freight operation and train marshalling. Mr. F. L. Hick, Assistant Operating Officer, described the Region's modern traction; Mr. W. Clegg, District Goods Superintendent, Leeds, referred to the new look in freight depots and passenger stations, and Mr. W. H. Vine, Commercial Officer, York, spoke on selling the services. Questions were invited after each talk, and maps, diagrams, and photographs were shown, as well as models of the Swindon-built 2,200 h.p. diesel-hydraulic and English Electric 1,000 h.p. locomotives which will operate services in the region.

Wages by Cheque

THE Payment of Wages Bill, to come before the House of Commons in May or June, and hoped by the Government to be put into force early in 1961, would authorise payment of

weekly wages into a banking account, by cheque, by money order, or by postal order, if an employee asks in writing for wages to be so paid and the employer agrees. The Bill is designed to remove restrictions imposed by the Truck Acts and related legislation. A growing number of weekly wage earners have opened bank accounts and it is believed that many would welcome payment into an account. The proposed legislation reflects the agreement of representatives of employers and trade unions on the Minister of Labour's National Joint Advisory Council. Some employers might object to paying by cheque if, for instance, the number of those requesting this were too small. Some time may elapse before the section permitting payment by cheque is brought into effect. No immediate widespread change, therefore, may be expected. Steps to effect payment of weekly wage payments otherwise than in cash would necessitate alterations in method by many large undertakings such as British Railways. The British Transport Commission is examining the matter. But it may be that the demand by employees and prospective employees is so great that some concerns will find it expedient to arrange to pay by cheque at the first opportunity.

Overseas Railway Traffic

EAST African Railways & Harbours approximate railway revenue for the month of October, 1959, was £1,604,000 as compared with £1,562,000 in the same month of 1958. Earnings from all sources of revenue increased with the exception of those from road services and miscellaneous receipts which fell by £5,000 and £3,000 respectively. The main increase was in goods receipts which were £41,500 higher than in October 1958; passenger and other coaching traffic increased by £5,000 and livestock by £2,500. Railway earnings of the West of India Portuguese Guaranteed Railway Co. Ltd. have continued to improve compared with the previous year, due mainly to the increased goods returns. For the 10-day period ending November 30, 1959, these showed an increase of Contos 426 over the corresponding period of 1958. Aggregate earnings from all traffic to the end of November amounted to Contos 15,767 compared with Contos 10,650 for the corresponding period of 1958. Salvador Railway Company receipts for October 1959 amounted to colones 125,000 compared with colones 131,000 in October 1958, a decrease of colones 6,000. Aggregate receipts from July 1, 1959, amounted to colones 620,000 compared with colones 724,000 in the corresponding period of 1958. Costa Rica Railway receipts for November 1959 amounted to colones 1,905,591 compared with colones 1,802,744 in November 1958, an increase of colones 102,847.

Locomotive Engineers' Dinner

SINCE its introduction four years ago the annual dinner and dance of the Institution of Locomotive Engineers has been increasingly successful. There can be no doubt that it provides a very welcome opportunity for a purely social gathering of members, and their ladies and their guests, which is appreciated by all parties, and which contributes towards the success of an institution which enjoys a very high regard. The most recent dinner and dance, which was held under the genial chairmanship of the current President, Mr. R. A. Smeddle, was an extremely enjoyable function, and some measure of its popularity may be judged from the fact that some 414 persons were present. The success of gatherings of this kind is never accidental—a great deal of care and forethought has to be given to their organisation, and apart from the good work which is always done by the Secretary and his office, members fully appreciated the indefatigable efforts of Mr. Maurice Crane, Chairman of the Visits Committee of the Institution, who doubtless felt rewarded by the enthusiasm of the members for the part he played in ensuring so friendly a gathering.

Information on Export Opportunities

THE Board of Trade Special Register Information Service for more than half a century has provided valuable information in the form of circulars on calls by public authorities overseas for tenders, on the requirements of foreign

firms seeking suppliers in Britain, and generally the widest coverage of export opportunities for British enterprise. The growth in the number of items of information and pressure on the machinery of the Service caused some delays, and because the machinery could not be extended quickly it was impossible to deal with the increase expected in the volume of information. From today, therefore, the Special Register Information Service in its previous form is being discontinued. A new printed *Export Service Bulletin* is being published on Mondays, Wednesdays, and Fridays, giving all the information previously published as individual circulars. In addition, every Monday, a weekly supplement is to be published containing economic and market commodity reports received from the United Kingdom Commercial, Diplomatic, and Trade Commissioner Services overseas. The annual subscription covering the new *Bulletin* is £10 10s., post paid—a moderate charge for the value received.

The Institute of Transport in 1958-59

FURTHER progress was made in the year ended September 30, 1959, in provision, under the auspices of the Institute of Transport, for research into, and the teaching of, transport in the University of Oxford. The appointment during 1957-58 of Mr. D. L. Munby (who is also a Fellow of Nuffield College) as the first Reader in the Economics & Organisation of Transport was supplemented by those of Mr. C. Foster as Senior Research Fellow at Jesus College and of Mr. W. A. Eltis as Junior Research Fellow at Exeter College. Part of the surplus of the endowment provided by the Institute of Transport is to be used for further research in transport subjects at Oxford. During the year the total membership of the Institute for the first time exceeded 10,000. A visit was paid in July to Copenhagen, where many aspects of transport in Denmark were studied, and useful contacts made with Danish transport operators. A New Zealand Division, a Nigeria Section, and a Port Talbot Graduate & Student Society were formed, and South Australia was approved as an area for the formation of a Section.

Seeking Passengers' Views on Car/Sleeper Services

CAR/SLEEPER trains are still a relatively new feature of travel on British Railways. The North Eastern Region, which is to extend its car/sleeper services this year, notably by increasing the number of trains between York and Inverness and other stations in the Scottish Region, has carried out a useful canvass of the views of 100 motorists who used the York-Inverness service in 1959. They were asked whether they would be prepared to pay more for a better class of sleeping accommodation, and whether the meals were all that could be desired and all other arrangements entirely satisfactory. They were also invited to suggest improvements and to comment generally on the service. Eighty-six replied, a notable figure, as 50 per cent is the normal response to this type of inquiry. It was clear from replies that the car/sleeper services are much appreciated. Many suggestions were received for improvement of certain facilities provided during the journey. These have been carefully considered. One popular request was for two-berth sleeping accommodation besides the four-berth accommodation previously provided. This suggestion is likely to be adopted on the York-Inverness service and on this service also the sleeping cars may be staffed by attendants able to serve tea and biscuits and generally to see to the comfort of passengers.

Remodelling Services on the G.C.R. Main Line

PRUNING by British Railways, London Midland Region, of the passenger services over the main line of the former Great Central Railway from next Monday is more drastic than some people had expected. There will be only three long-distance trains, semi-fasts, daily between Marylebone and Nottingham. Details are given elsewhere in this issue. All through trains between Marylebone and Sheffield, Manchester and Bradford are withdrawn. To replace the "South Yorkshireman" between Marylebone and Huddersfield, Halifax and Bradford, through coaches will be run between St. Pancras and Huddersfield and Halifax via Sheffield Midland, worked in new services between Sheffield and Halifax. All

the major population and traffic centres on the G.C.R. are served by the Midland and Western Division lines of the London Midland Region. Cross-country passenger services via Banbury are not affected. The Marylebone-Nottingham trains for the time being will be steam-hauled, though it is intended eventually to use multiple-unit diesel sets. The object is to cut costs by reducing the mileage of insufficiently patronised trains and to free the former Midland Railway main line, which in turn is relieving the Western Division lines now being electrified, for fast passenger and other trains by concentrating heavy goods trains on the G.C.R. line. The next stage in effecting economies will be the closing, later, of some wayside stations between Aylesbury and Nottingham.

Improvement of Indian Strategic Communications

THE proposed Calcutta-Siliguri 5-ft. 6-in. gauge line, described elsewhere in this issue, may be of strategic importance. As well as giving a direct connection between Howrah and the Malda area, this project will reduce the distance from Howrah to Siliguri and Assam by about 150 miles. A most important new through route is, therefore, made possible by the construction of a formidable projected Ganges Barrage. Siliguri until a few years ago was connected with Kalimpong by a branch of what was, when built, the Teesta Valley branch of the Darjeeling Himalayan Railway Extensions System. Though this line is now closed, it might be re-opened, and in any case there is a motor road up the valley to Kalimpong. Kalimpong is on the Sikkim border and Sikkim is understood to be claimed by the Peking Government as Chinese, and that authority also complained to India that the rising in Tibet was engineered and supported by those whose headquarters was Kalimpong. It would, therefore, seem reasonable to expect that the Indian Government would be doing all in its power to provide an adequate line of communication—such as a broad-gauge railway—at least as far as Siliguri, as a forward base. Such a base would also be valuable for supplying advanced bases near the Sino-Assam border subject to recent Chinese incursions and difficult of access from India.

Indian Railways Passenger Traffic Problems

HANDLING by the Indian railways of increased passenger traffic caused by the growth of population and by a rise in the spending power of some industrial workers is complicated by the need to move intensive, and growing, goods traffic over the same lines, and by scarcity of funds for passenger rolling stock building. Under the Second Five-Year Plan 585 broad-gauge and 1,488 metre-gauge additional passenger coaches have been provided. As over-crowding was heavier on the metre gauge at the end of the First Plan, additional passenger transport capacity to the extent of 23 per cent was provided on it in the Second Plan against 10 per cent on the broad gauge. To increase accommodation, refreshment cars and air-conditioned coaches, where not fully used, have been replaced by ordinary coaches, mostly third class. To increase line capacity, largely over single sections, extra third class coaches have been attached, not without difficulties in keeping time, despite the availability of additional motive power. Priority is being given to the needs of the third class passenger largely on social grounds, and the potential upper class traveller has the air and other alternative means of transport. Meanwhile passenger traffic records are being broken.

Kings Cross for the Continent

THE Channel Tunnel project is discussed in relation to the British Railways modernisation plan by Monsieur René Pollier in an article in our French contemporary *Transmondia*. He considers the tunnel to be indispensable to the success of the plan, as indeed to the future economic life of the United Kingdom. He sees two main difficulties calling for bold solutions. One is the loading gauge, affecting through running of vehicles to and from the Continent. The other is the movement of the increased traffic which the tunnel will certainly engender. Arrangements should be made, he considers, for vehicles built to Continental clearances to be dealt with at a London station serving mainly traffic from and to France and beyond. For this existing terminal and approach facilities must prove quite inadequate, especially as electrification will lead undoubtedly

to more internal traffic on the routes concerned. He proposes links to enable all Scottish traffic to be handled at a reconstructed Euston, with the diversion of services to St. Pancras so as to free Kings Cross to become the Continental terminus, reached partly by a new line built to Continental clearances starting at Ashford and passing under the Thames near Tilbury, thence via Finchley, with new connections to Luton and Leighton Buzzard on the main lines of the London Midland Region.

Development on the North Eastern Region

SPEAKING at a special meeting of the Yorkshire area of the Transport Users' Consultative Committee at York on December 16, to which further editorial reference is made this week, Mr. F. C. Margetts, Assistant General Manager (Traffic), North Eastern Region, British Railways, maintained that, far from dying as a result of necessary contraction, British Railways are full of vigorous life. Elsewhere in this issue, Mr. T. H. Summerson, Chairman of the North Eastern Area Board, gives a brief summary of the Region's aims for the coming year, and Mr. H. A. Short, General Manager, describes the means by which the Region intends to implement the work involved. In an article which immediately follows, Mr. F. L. Hick, Assistant Operating Officer, describes the extent to which diesel multiple-unit stock will be extended throughout the region, and the degree of success which has attended its introduction to date. In common with other Regions throughout Britain, the North Eastern is determined usefully to deploy its share of the finance allocated to railway modernisation. During the year, we shall publish articles which will describe and illustrate the work which has been done and the results which have been attained.

At the meeting of the Yorkshire Area of the T.U.C.C. on December 16, Mr. Margetts generated no little surprise in his audience when he forecast a top speed for the London to York journey of two and a half hours. Although he later admitted that this timing might well not come to pass for a year or two, his subsequent outline of projected improvements gave substance to his words. Mr. Margetts stated that modernisation on the North Eastern Region has now reached the stage at which progress is visual, and that the pattern is becoming daily more evident. The North Eastern aim is to streamline: general progress will accompany the contraction of stations, depots, marshalling yards, and ancillary bodies. The objective is complete dieselisation. While this is being achieved, other services will be worked in with the diesels. Particular emphasis is to be placed on passenger traffic: there are to be more even time services, greater cleanliness, and more comfort. Mr. Margetts and other senior officers have made frequent visits to Continental systems to study new methods, and particular note has been taken of ways of making and keeping railways clean. Close attention is being paid to a German carriage-cleaning machine, and it is probable that one of these will be installed at Newcastle. Another may follow at Hull.

Stations are to be modernised throughout the region. The outstanding example of this work is that under way at Leeds, a project described in some detail in our issue of August 28, 1959. Other station reconstructions will include work at Hull. A new office is planned for the front of this station, together with certain alterations to the underlying buildings, and electricity will replace the existing gas-lighting. Lighting is a matter to which considerable thought is being given throughout the region, and much has already been done in this respect, notably at York. Telecommunications and signalling are equally high on the list of priorities. All telecommunications are to be overhauled, and contracts for this work have been let. Much of the work is already in progress. The Region is in the van of signalling development, and is to introduce centralised traffic control to this country as its predecessors introduced steam and diesel railway traction. The first installation will be between Hull and Beverley.

Thirteen 2,000-h.p. diesel-electric locomotives operating from Newcastle are setting the pattern of future North Eastern motive power. Later, 3,300-h.p. Deltic locomotives, already running on test, will operate the Anglo-Scottish services. Preparations are being made at York for the reception of this powerful equipment, which will be based on York and Newcastle. All applicable modern techniques, including methods

in America and Germany, are being studied and, where usefully relevant, will be adopted and, if necessary, adapted. Constant study and experiment is expected to result in the origination of further new methods on the Region itself.

Little Light from the Lords

THE only major item of information which emerged from the five-hour debate on British Railways in the House of Lords on December 17 was that the Government, in the words of Lord Mills, Paymaster General, admitted that any writing-down of the capital of the British Transport Commission to excuse its repayment of loans and of interest to the Treasury would be a subsidy, and that the question whether any public undertakings should be financed by a subsidy "was a matter for most careful thought and for Parliament to consider." The new Minister of Transport, Mr. Ernest Marples, is, rightly, giving the British Transport Commission and British Railways latitude in implementing the plan for railway modernisation and re-equipment, as re-appraised. There are some indications of a trend towards improvement in mineral and merchandise traffics. The Government, Lord Mills added, believed that in the meantime it should give the Commission and the railways its confidence. It was not prepared at present to make any further statement on the ability to make repayment to the Treasury by 1963. Not much more could be expected from a Government which has been in office for only two months. It would be unwise to attempt a deduction from the Paymaster General's remark that he could not see what was wrong with a subsidy during a period of reconstruction.

Some indication had been hoped for of a favourable attitude by the Government towards affording a steady home market for British manufacturers of locomotives, rolling stock, and other railway material. Nothing in fact emerged. Lord Burden drew attention to difficulties in connection with the construction of diesel locomotives for British Railways. The policy of building the bodies and underframes of some main-line locomotives in railway works, he maintained, and of installing there engines and components produced by private builders, was the result of a desire by the Commission not to cause unemployment by reducing the volume of production in railway works. Lord Burden attributed some recent breakdowns in diesel locomotives to lack of experience on the part of railway workshop staff. He did not state whether he was referring to construction or maintenance or both. It is hard to see what was meant by his statement that 50 diesel locomotives had been obtained from private builders because of these breakdowns. A proportion of main-line diesel locomotives has been obtained from private builders since the start of the programme of turning over to diesel traction.

The Joint Parliamentary Secretary to the Ministry of Transport, Lord Chesham, emphasised that British Railways could not play their proper part in the national economy until they had "been put into the right size and shape" and their equipment and operating system had been modernised, and that modernisation was "going on now . . . as the Commission wanted it, as indeed it had set out in its re-appraisal." The reference to size no doubt is in connection with the closing of unremunerative lines. The Government will not stand in the way of applications by the Commission to close lines and stations after thorough review of the consequences. The machinery for reference of proposals for closing to the Transport Users' Consultative Committees and the Central Transport Consultative Committee ensures that plans are duly ventilated. Incidentally, in recent decisions not to withdraw services, as had been originally proposed, from some lines and stations, it has been second thoughts on the part of the Region of British Railways concerned, as to the economic effects of closure, and not any outside agency, which have prompted reversal of the decision.

The debate, on the move for papers by Lord Lucas of Chilworth, Parliamentary Secretary, Ministry of Transport, in the 1950-51 Labour Government, to call attention to the British Railways and their place in the country's transport system, was a good opportunity for many peers to unburden themselves. The summary elsewhere in this issue giving some of the main points made shows intensity of the feelings as to the service given by the railways and to the handicaps under which they

are obliged to function. No convincing reason was given for the criticisms of Sir Brian Robertson, Chairman, and the other Members of the British Transport Commission. They were based partly on a feeling, experienced by a good many people, that some form of direction of nationalised transport by one strong and able man, adequately paid, is preferable to government by committee. Lord Lucas received little support for his proposal for an inquiry into the whole question of railways and the national transport system by a "first-class proved industrialist."

Railways in 1860

POLITICAL and economic instability in various parts of the world, coupled with a wave of speculative industrial promotion in Great Britain, made the railway situation of 1860 uncertain, both at home and abroad. The promotion of "contractors' lines" in this country was in full swing and upwards of 170 Bills relating to railways were before Parliament; 99 were passed, and of these 29 incorporated new companies. Among the new railways were the Petersfield, the Manchester & Milford, the Horsham & Guildford Direct, the Bedford & Cambridge, and the Aylesbury & Buckingham. The Bank Rate changed 11 times during the year, and rose from 2½ per cent at the beginning to 6 per cent at the end. William Ewart Gladstone had emphasised in 1852 that income tax was a temporary expedient, and set a period of seven years at gradually declining rates for its abolition. Thus 1860 should have seen the elimination of the "obnoxious" tax, but this was frustrated by the Crimean War, and, in 1860, by the repeal of tariffs. The increased cost of national defence was the justification of a tax rate of 10d., a higher figure than was again reached until the South African War at the end of the century. During the year, the old copper coinage was withdrawn, and replaced by the present sizes and weights of bronze coins, which later facilitated the introduction of coin-operated machines, used so extensively by, and on, railways.

Board of Trade Returns showed an increase in the railway mileage of Great Britain during 1860 from 8,737 to 9,069, an advance of 332, of which 274 was in England and Wales, and 58 in Scotland. This increase is somewhat greater than the net 290 miles of new route opened during the year, and may be attributed in part to lines inspected but not yet brought into public use. Outstanding among the openings (the principal of which are recorded this week in the Scrap Heap) was the London & South Western Railway main line to Exeter. This line had reached Gillingham in 1859 and was extended by the Salisbury & Yeovil Railway to Sherborne (13 miles) on May 7 and thence to Yeovil (6½ miles) on June 1. The L.S.W.R. itself built the final 49-miles section from Yeovil Junction to Exeter and opened this for passenger traffic on July 19. The Victoria Station & Pimlico Railway, although only 1½ miles long, provided one of the most noteworthy openings of the year. On October 1, it brought the London, Brighton & South Coast Railway into its permanent West End terminus at Victoria, a station built on the site of the Grosvenor Canal basin. The London, Chatham & Dover Railway moreover reached London a few weeks later with the opening on December 3 of its Western Extension from Rochester to Bickley, and the exercise of running powers thence to Victoria.

The Great Western Railway took a momentous decision in the latter part of the year, when it resolved to extend the "narrow gauge" (the present standard 4 ft. 8½ in.) into Paddington. With the financial support of the G.W.R., work was begun on building the Metropolitan Railway. The junction branch at Paddington with the Metropolitan Railway was completed by August, 1860, and used for the removal of spoil and the conveyance of materials. The first water troughs, the invention of John Ramsbottom, were installed in the autumn at Mochdre (near Llandudno Junction) by the London & North Western Railway. This method of replenishing locomotive water during motion has remained a peculiarly British railway feature, although used later to a limited extent in the U.S.A. (now discontinued) and in France. Other technical advances of the year included the introduction by William Bouch of a 4-4-0 tender locomotive on the Stockton & Darlington Railway, and steel firebox tests by Alexander Allan on the Scottish Central Railway. George Francis Train opened his first street tramway, at Birkenhead, on August 30, 1860. The Birkenhead

Street Railway Co. Ltd., was incorporated on May 7, 1860, and the line was built in six weeks. Although tramways were not immediately developed to any great extent in this country, they later became a source of severe competition with railways for urban and interurban traffic.

On September 18 Joseph Locke died, aged 55. He was the third of what *The Times* called "the great triumvirate of the engineering world," and crowned a very distinguished career in railway construction by serving as President of the Institution of Civil Engineers. The proposal to hold a centenary commemoration at Barentin has been mentioned already in our columns. On February 10, 1860, the Stephenson Memorial Institute and School at Willington-on-Tyne was opened. It was built on the site of the cottage in which Robert Stephenson was born, and, to the time of his death, Robert took a prominent part in promoting this memorial to his father.

With the opening on January 2 of the Hampstead Junction line from Camden Town to Willesden, the first example in Great Britain of complete signal and point interlocking, in the sense in which that term has ever since been understood, was brought into use at what was long known as the Kentish Town Junction. The apparatus had been designed in the previous year by Austin Chambers to satisfy the wishes of Colonel W. Yolland, the Inspecting Officer of the Board of Trade. It differed from John Saxby's simultaneous motion mechanism of 1856 in that it was necessary to move a point lever to the end of its stroke before any movement whatever could be imparted to a dependent signal arm, a principle thereafter accepted by Saxby himself. The year 1860 had a bad record for railway accidents, with 29 fatalities to passengers in seven accidents, three of which were derailments and four collisions.

Abroad, the first railway was opened in what is now the Union of South Africa. This was the two-mile line between Durban and the Point, authorised in 1859, built by the Natal Railway Co. Ltd., and opened on June 26, 1860. It was acquired by the Natal Government on January 1, 1877, under an Act of 1875. A much longer railway in the Cape of Good Hope had been authorised in 1857 and was under construction. This was the 57-mile Cape Town to Wellington line of the Cape Town, Wellington & Docks Railway Co. Ltd., of which the first section was opened in 1862. It was taken over by the Cape Government in 1873 and became the first Government-owned railway in South Africa. Through the efforts of Garibaldi, a united Italy emerged during the year, and Victor Emmanuel was proclaimed king. The constituent states (after the cession of Savoy and Nice to France) were possessed of some 1,472 miles of railway, much of it built under Austro-Hungarian auspices.

Canada occupied a prominent place in the railway news of 1860, partly because of the State tour, the first of its kind, made by the 19-year-old Prince of Wales (afterwards King Edward VII). On August 25, at Montreal, he laid the last stone of the Victoria Bridge "in true masonic style." This 10,284-ft. tubular structure across the St. Lawrence was for many years the longest bridge in the world. It was designed by Robert Stephenson, and was opened to traffic on November 24, 1859, six weeks after the death of its designer, so that the ceremony by the Prince of Wales was only of a formal character. This bridge does not survive in original form, as it was rebuilt as a girder structure on the original piers in 1898. By the end of 1860 no fewer than 2,065 miles of railway had been opened in what is now known as Canada, of which 1,880 miles was in what was then called Canada, namely the provinces of Quebec and Ontario. Practically all of this had been built in less than a decade. During the ensuing period construction proceeded more slowly, as trade was suffering as a result of poor harvests in what was primarily an agricultural community. Slack times caused the Great Western Railway of Canada to use its repair facilities at Hamilton (Canada West) to build the first locomotive ever constructed in Canada. It was an 0-6-0 freight engine designed by Richard Eaton, the Locomotive Superintendent, which was completed in January, 1860, and named *George Stephenson*. In the U.S.A., besides the similar adverse effects on railway traffic which applied in Canada, the country was on the verge of the War Between the States. South Carolina seceded from the Union on December 20, and was followed by the others which formed the Confederate States early in 1861. Nevertheless, some 1,837 miles of new railway were opened during 1860, bringing the total in the Union, so soon to be divided, up to 30,626 miles.

Statutory Grain Rates in Canada

THE object of the joint submission of the Canadian Pacific and Canadian National Railways to the Royal Commission on Railway Transportation in Canada in the matter of statutory rates on grain and grain products traffic carried in Western Canada, is to permit the fixing of a just and reasonable freight rate to cover the direct cost of moving the goods and also a fair proportion of other transportation costs that are incurred in moving the traffic. The present rates are at the same level as applied in 1899, notwithstanding the materially increased cost of transportation which the Canadian railways have had to meet in the last 60 years. No other segment of traffic requires the railways to do as much work as does the movement of grain in Western Canada, and it is the submission of the railways that the major handicap under which they are at present operating is the statutory prescription of very low rates for the movement of western grain.

The place which these rates now take in the rate structure and the contribution they make to the revenues of the railways has been shown by statistics obtained by the Board of Transport Commissioners through a waybill analysis. The figures covering traffic moving at statutory and related rates show this traffic has not assumed any share of the increased costs since 1949. Approximately one-third of the intra-Canadian service performed by the Canadian railways as reported in the waybill analyses is in the transportation of grain and grain products moving at statutory and related rates, although the revenue received by the railways for performing this service represents only slightly over 10 per cent of the total.

The basic object of rate making is to set rates at the level which will permit the greatest amount of traffic to move freely and yet provide the railways with maximum net revenue. Railway freight rates with the exception of the statutory grain rates are subject to the control of the Board of Transport Commissioners. The Board, by the Railway Act, has the responsibility to fix, determine, and enforce just and reasonable rates and to alter rates as changing conditions or cost of transportation may, from time to time, require.

A study was made to develop the cost to C.N.R. and C.P.R. of transporting grain and grain products moving at statutory and related rates. For the purpose of the detailed study the year 1958 was used adjusted to conditions as they existed as regards both revenues and expenses at the end of the year. In preparing the analyses more than one year's operations were taken into account to reflect changes over the years and give them proper weight. The study showed that C.N.R. earned 0.48c. for carrying a ton of grain one mile and the C.P.R. 0.5c per ton mile.

These figures take into account the investment cost of railway plant created specifically for the movement of grain and grain products, and the plant jointly used by grain and other types of freight, but requiring added costs because of the volume of the grain movement. Also considered are the constant costs, which although not directly associated with the grain movement, must be shared by all kinds of rail traffic.

The railways have substantially increased their property investment and carried more traffic in the post-war era, but their financial position shows a decline due to statutory rates on western grain, competition from other forms of transport, and inability of authorised rate increases to meet increased costs and earn a reasonable return on investment. From 1946 to 1948 the C.N.R. was \$191,000,000 short of meeting charges and C.P.R. \$194,000,000 short of a level of earnings judged by the Board of Transport Commissioners to be just and reasonable. This deterioration in the financial position of the railways occurred in spite of aggressive management policies to make full use of technological change.

No segment of traffic receives more attention from the operating officers of the railways than does the movement of western grain to export positions. If recognition is not given to the railways' necessity to secure adequate revenues from this traffic the intensity of the railway problem will continue to increase to the detriment of all Canadians.

In the submission of the railways it is clear that inadequate revenue from the movement of the Western Canadian grain crop to export positions is contrary to the public interest and the solution of the problem created by the fixed rates on this traffic is basic to a solution of problems relating to railway transportation in Canada.

Slight Rise In October Freight Train Traffic

(By a correspondent)

IN 1951 and a number of subsequent years British Railways originated 23 million tons of freight train traffic in the eleventh four-week period which falls almost entirely in October. In four weeks to November 1 this year 19,283,000 tons were forwarded. That was an increase of 633,000 tons (3 per cent) on the poor year 1958, but a decrease from the good year 1953 of 4,500,000 tons, or 19 per cent. Compared with last year merchandise accounted for 304,000 more tons (10.5 per cent); minerals were also up by 516,000 tons (13 per cent), but coal class traffic decreased by 186,000 tons (1.6 per cent). In contrast to the expanding traffic of October, 1953, the decline in tonnage this year was 878,000 (21 per cent) for merchandise, 789,000 (15 per cent) for minerals and 2,841,000 (19 per cent) for coal.

The volume of merchandise began to grow in July, but there was no rise in the resultant revenue until October. Even an increase of 277,000 tons, or nearly 10 per cent, in four weeks to October 4 did not produce more revenue, though it entailed the working of 31,801,000 additional ton miles. In the October period merchandise receipts rose for the first time by £186,000, or 2.2 per cent, while the railways worked 44,834,000 extra ton miles. Probably a good deal of merchandise is being enticed back to rail by quoting low rates and in these times of high working expenses the manipulation of charges may not yield much net revenue.

At the present time, many American railroads are cutting down charges on selected traffics. Over the past 15 years freight rates were advanced repeatedly to meet rising operating expenses, the last general increase being in February, 1958. There is now a widespread feeling that the wiser course in future will be to raise the volume of traffic by providing good

service at competitive prices. Under the Transportation Act of 1958 the railroads can charge rates, which are compensatory, without regard to the effect on road and water competitors. For example, a 25 per cent cut in rates on grain, moving from the Midwest to the East Coast for export, was made to counter diversion to the St. Lawrence Seaway. The Interstate Commerce Commission also approved a reduction of nearly 20 per cent in certain paint rates which may produce \$1,000,000 new revenue for the Eastern railroads by recovering traffic from road transport. On another tack two railroads have asked the I.C.C. to approve carriage contracts with customers, after the pattern of the "agreed charges" introduced by our former railway companies and afterwards adopted with success in Canada. It will be instructive to watch how these new lines of policy develop.

To resume the survey of our October results, all Regions of British Railways forwarded more traffic, the rise varying from 14,000 tons (0.4 per cent) in the Western to 225,000 tons (6.9 per cent) in the Eastern, which handled 109,000 more tons of merchandise (24 per cent), 66,000 more tons of minerals (8 per cent) and 51,000 more tons of coal (2.6 per cent). The other Regions despatched less coal, but loaded more merchandise and, except for the Western, more minerals. In the North Eastern mineral tonnage was up 195,000 tons (29 per cent) and in the Scottish Region 110,000 tons (27 per cent), owing to renewed activity in the iron and steel industries.

The railways worked 1,457 million ton-miles in the October period, an increase of 47 million or 3.3 per cent. Though the Eastern Region had the largest rise in tonnage, it worked only 1,666,000 more ton miles (0.5 per cent), against increases of 23 million in the London Midland (5 per cent), 16 million in the Western (6 per cent) and 8 million in the North Eastern (4 per cent). No. 12 of *Transport Statistics*, due early in the New Year, should show an improvement in the operating statistics for the 12 weeks from September 7 to November 28.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Selection and Training of Railway Staff

December 16

SIR,—Mr. Robert Lewis asks in his letter in your December 4 issue, how I, as Regional General Manager, satisfy myself that my officers "take a live personal interest" in the people in their charge. The answer is the same for any large business: to delegate to good officers, and to see that they measure up to their responsibilities.

Mr. Lewis asks also for evidence that every man is considered for promotion "whether he applies or not." Vacancies are advertised, and it is surely up to the individual to apply if he wants promotion. I cannot compel men to seek advancement, but they are encouraged to do so. When they do so, their claims are carefully considered.

Yours faithfully,

H. C. JOHNSON
General Manager

British Railways, Eastern Region,
Liverpool Street Station, E.C.2

Speed in Passenger Travel

December 6

SIR,—With regard to Mr. G. F. Fiennes' observations, mentioned in the editorial note in your December 4 issue, I would point out that many motorists travel across country. It is difficult to average a speed of 35 m.p.h. on any cross-country route of British Railways, if account be taken of time lost in getting to and from the station.

The former Great Northern Railway developed a great deal of main-line traffic by running very fast through portions of main-line expresses, to and from smaller population centres, and at times convenient to passengers. A regular-interval diesel train service simply will not do when it involves travelling in crowded trains, missing a main-line connection, or travel accompanied by children, perambulators, or heavy luggage.

You cannot achieve even loading of passengers on a long-distance interval service. Many passengers will want to travel from Kings Cross to Newcastle at 5 p.m. Few will want to do so at, say, 1 p.m. The Swiss and Swedish railways derive considerable profit from passenger operations without many regular interval timings, but with much recourse to through carriages. It is, moreover, possible to superimpose differing through services on a regular interval service pattern and indeed I should have thought this necessary in a country as big as Britain.

Yours faithfully,

E. DECUREUS

29, Chadwick Road, E.11

Explaining Train Delays

December 19

SIR,—You comment in your December 18 issue on the Southern Region poster announcing delays to trains caused by the bridge work on the main line near Malden. May I suggest that, instead of receiving apologies for delays, the travelling public would much appreciate an effort by the railways to make up whenever possible such lost time as may be caused by the delay?

On the up journey no doubt this would not be so easy; on the down journey it should be well within the range of practical politics, provided always that the management takes all the staff responsible into its confidence over the matter, explaining that delays to trains containing hundreds of passengers may inconvenience hundreds of persons, some quite seriously, and that to avoid this it is really worth while making an effort. On my travels I find that this seems to be the almost universal practice on the Continent.

Yours faithfully,

W. A. WILLOX

Edstone, Wootton Wawen, Solihull, Warks.

THE SCRAP HEAP

British Railways Centenaries of 1960

Below is a list of some British railway centenaries which occur during 1960:—

January 2, Camden Road to near Willesden Junction opened (6½ miles), Hampstead Junction Railway

April 12, Leiston to Aldeburgh opened (4½ miles), East Suffolk Railway (worked by Eastern Counties Railway)

April 16, Chappel to Halstead opened (6 miles), Colne Valley & Halstead Railway

April 18, Kinloss to Findhorn opened (3 miles), Findhorn Railway

May 1, Oswestry to Pool Quay opened (11 miles), Oswestry & Newtown Railway

May 1, Southall to Brentford opened for passengers (goods July 18, 1859) (4 miles), Great Western & Brentford Railway

May 7, Gillingham to Sherborne opened (13 miles), Salisbury & Yeovil Railway (worked by London & South Western Railway)

May 16, Bourne to Essendine opened (6½ miles), Bourne & Essendine Railway

May 24, Maybole to Girvan opened (13½ miles), Maybole & Girvan Railway

May 25, Malvern Link to Malvern Wells opened (2½ miles), Worcester & Hereford Railway

June 1, Sherborne to Yeovil opened (6½ miles), Salisbury & Yeovil Railway (worked by L.S.W.R.)

June 4, Turriff to Banff & Macduff (Gellymill) opened (11½ miles), Banff, Macduff & Turriff Extension Railway

June 20, Lumphannans Junction to Kinross opened (7 miles), and Kingseat Branch for goods only (3½ miles), Kinross-shire Railway

July 9, Faversham to Canterbury opened (9½ miles), London, Chatham & Dover Railway

July 19, Yeovil Junction to Exeter opened for passengers (goods August 1, 1860) (49 miles), L.S.W.R.

July 19, Sittingbourne to Sheerness opened (7 miles), Sittingbourne & Sheerness Railway (L.C.D.R.)

August 1, Faversham to Whitstable opened (6½ miles), Margate Railway (L.C.D.R.)

September 1, Luton to Welwyn Junction opened (12½ miles), Hertford, Luton & Dunstable Railway

October 1, Stewarts Lane Junction to Victoria opened (1½ miles), Victoria Station & Pimlico Railway (worked by London, Brighton & South Coast Railway)

October 10, Stratford to Hatton opened (9½ miles), Stratford-on-Avon Railway

October 31, Dairy House to Tynemouth opened (5 miles), Blyth & Tyne Railway

November 1, Wimborne to Blandford opened (11½ miles), Dorset Central Railway

November 2, Harleston to Bungay opened (6½ miles), Waveney Valley Railway

November 6, Symington to Broughton opened (8 miles), Symington, Biggar & Broughton Railway

December 3, Bickley to Rochester opened (21 miles), London, Chatham & Dover Railway

December 27, Moorswater to Looe opened for goods (passengers September 11, 1879) (7 miles), Liskeard & Looe Railway.

First Class Sleepers

Only the best will do for the homeless, vagrants of Oxford. They like to sleep first class in trains at the local railway sidings. Women cleaners often find as many as 30 asleep in the carriages, Oxford magistrates were told. Sometimes the men break windows to get in. A 41-year-old labourer was fined £2 for trespassing on the sidings, and refusing to leave.—*From the "Daily Mail."*

Written Off

The "R.1" class rebuilt Stirling 0-6-0T engine of the former South Eastern Railway, shown in the illustration awaiting breaking up at Ashford Works, was working until recently on the branch from Folkestone Junction to Folkestone Harbour, mainly on a descending gradient of 1 in 30. The working of the branch has been taken over by 0-6-0 pannier tank engines of the former Great Western

Railway. Heavy boat trains used to require four engines up the gradient from the Harbour Station.

On Tick

The world's first rail-car credit card has been issued as a joint venture by Trans-Canada Airlines and Canadian National Railways. It provides credit accommodation for transportation, hotels, telegrams and express parcel shipments.

Electrification Possibilities (1899)

It is quite possible that the pending experiments with electric traction on a short section of the Metropolitan and District Railways may be successful from an operating standpoint, but only on the conclusion of the trials will it be feasible to form some idea of the financial prospects of the undertakings if steam locomotion were abandoned and electricity substituted as the motive power. In the meantime it is interesting to observe that the same problem affecting two similar railways has been raised in Berlin, although the experimental stage has not yet been reached in that city.—*From "The Financial Times" of December 16, 1899.*

[A six-coach train, owned jointly by the District Railway and the Metropolitan Railway, was used for an experimental electric service between High Street, Kensington, and Earls Court. Current was obtained from a temporary power house at Earls Court. The experiments were begun in February, 1900, and a public service was maintained from May 21 to November 6 in that year. At first a special "novelty" fare of 1s. single was charged, but subsequently normal fares were used.—Ed., R.G.]

Last Train

A pattering upon the window pane
Confirms the latest forecast "Rain again."
A passing "special," homing from the west,
Bears signs of storm and tempest on her crest.
The casements rattle in the wintry blast
And memories come crowding, thick and fast.
Yet there is calm about this evening hour,
The sense of urgency has lost its power,
The fire that cheers the little waiting room
And lends enchantment to surrounding gloom,
Settles a little lower in the grate,
As word goes round: "She's running a bit late."
And, maybe, some are congregating, too,
Who loved in life this friendly rendezvous.

But soon a stir, a rumbling in the night
Brings a brief interlude of warmth and light.
The comradeship of cheerful chatter reigns.
To mark the last and, surely, best of trains.
The green light glows; the train moves on its way
And all is well again. So ends this day.

A.B.



Photo]

[A. Earle Edwards

One of a class which used to work the Folkestone Harbour branch, awaiting breaking up at Ashford

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Manduadih Components Factory

The locomotive component parts factory at Manduadih near Banaras is expected to start production in 1961. The expenditure likely to be incurred on this factory is Rs.4.79 crores for the scheme as a whole and Rs.2.56 crores for the first phase to be completed by the end of the Second Five Year Plan. The broad-gauge siding to the factory has been completed and 80 per cent of the work on quarters required for housing the staff has been done. Work on essential services like water supply and sewage is also in progress. Tenders for the main workshop construction have been accepted and the work on this will also commence shortly.

Brahmaputra Road - Rail Bridge

The Prime Minister, Mr. Nehru, is expected to lay the foundation stone of the Rs. 10-crore rail-road Brahmaputra Bridge project in Assam on January 9. The project is expected to be completed some time in 1962. One of the major bridge construction projects in recent years, the Brahmaputra Bridge will be built entirely by Indian engineers. The organisation has been placed under a Chief Engineer, Mr. B. C. Ganguli, assisted by an engineer-in-chief, a deputy chief engineer, and other staff.

The Railway Board has let the contract for the steel work to the Indian combine of Braithwaite, Burns & Jessops. The contract for the foundation work and well sinking has been awarded to another Indian company, Hind Construction Limited. Both of these firms were engaged on similar construction work

on the Rs. 15-crore Ganga Bridge project.

The Brahmaputra is the only major Indian river which throughout its long course has not so far been bridged. The provision of a bridge across the river at Amingaon has been considered an operational necessity in view of the large traffic increase anticipated in this area as a result of industrial development, including the setting up of an oil refinery near Pandu. The bridge will be located half a mile downstream of the present ferry site.

Southern Railway Doubling Works

Tenders have been invited for the earthwork required for doubling the track throughout six sections of line between Dwarafudi and Samalkot, estimated to cost some £144,000. Samalkot is the junction on the main Madras-Calcutta East Coast route for Cocanada Port.

Committee on Bridge Design

The committee of eminent engineers under the chairmanship of Dr. A. N. Khosla, Vice-Chancellor of Roorkee University, appointed in 1957 by the Minister of Railways to report upon bridge design, has now completed its investigations. It was composed of senior officers of the Ministries of Railways, Defence, Transport & Communications, the Central Water & Power Commission, and the Meteorological Department, and it co-opted other well-known retired engineers. Its terms of reference were to review methods of design of bridges in the light of the latest knowledge and experience, and to lay down standards for future design. After nearly 2½ years' deliberations, the committee has made its

recommendations in a report to the Minister; they are now being considered.

QUEENSLAND

Mt. Isa Line Reconstruction

Of the 603-mile Townsville-Mt. Isa north-western section of the Government Railways immediate arrangements are being made to reconstruct the 234-mile section from Richmond to Duchess at a cost of £A.3,300,000. Mr. W. Nutt, Senior Maintenance Engineer, Q.G.R., has been appointed Project Manager in charge of this Project Unit as a special sub-department.

VICTORIA

Proposal for New Line Rejected

The vexed question as to whether a new railway should be built from Frankston to Mornington via Mt. Eliza has been decided by the refusal of the State Government to agree to the proposal. A fierce local controversy was aroused over the matter. In 1951 the Victorian Parliamentary Public Works Committee recommended that a new electrified railway should be built over a route which was five miles shorter than the existing line. It was to cost £1,200,000 and land was reserved along the route of the proposed line.

The State Government has approved a proposal to electrify the existing line from Frankston via Baxter to Mornington at a cost of £552,000 when there is evidence of greater development in the area beyond Frankston. This follows a recommendation by an inter-departmental committee investigating transport requirements on the Mornington Peninsula. The latter states that apart from the cost factor the present route offers greater scope for co-ordinated road passenger services and car parking facilities. It suggests that substantial car parking facilities could be provided at the intermediate stations of Baxter and Moorooduc. At present there is a goods service only between Frankston and Mornington. Passenger services are provided by road transport. Land reserved along the rejected Mt. Eliza route will now be released for development.

NEW ZEALAND

Indigenous Diesel Production

For the first time, diesel-electric locomotives will be built in New Zealand Railway Workshops, during the next two or three years. This has been announced by Mr. M. Moohan, the Minister of Railways, who states that Cabinet has approved an expenditure of £800,000 for the construction of 20 diesel-electric shunting locomotives, each between 400 and 500 h.p.

Mr. Moohan said that engines and electrical equipment would be imported,

Electric Traction in New Zealand



Upper Hutt-Wellington multiple-unit electric train leaving Taita for Wellington. The line is electrified at 1,500 V. d.c.

but the maximum possible use would be made of New Zealand materials and labour. The new locomotives will replace steam engines which have reached the end of their economic life. It is expected that the delivery of the new locomotives will begin about 18 months after the contract is placed for engines and components.

CANADA

Relocation of Ottawa Terminus

The Canadian Government recently approved the recommendation of the National Capital Commission that the relocation of railway facilities in the Ottawa area be based on a new passenger terminal in the vicinity of the intersection of the Queensway and Alta Vista Road, near the Hurdman's Bridge area. This decision was reached only after several discussions with the railway companies and consultation with the chief planning consultant to the N.C.C. The Government believes the new location will fit in best with the growth and development of the city and its traffic. Removal of the terminal from the present location will give the maximum possible opportunity for the improvement of road traffic facilities in the congested central area.

ARGENTINA

Organised Robbery of Railway Material

The railway police of Tafi Viejo, where the General Belgrano Railway has its principal shops, have uncovered a theft of over 10 million pesos' worth of railway material over a considerable period by a well-organised gang. A number of supervisory staff are implicated.

Rehabilitation of Railways

Representatives of the metallurgical industry were called to Government House recently and were asked to assist in the rehabilitation of the railways by repairing locomotives, wagons, and coaches, and in other ways to be deter-

mined later. The full support of the industry was promised and the work will be completed in two years.

UNITED STATES

Watertight Bridge Deck

To provide a watertight, shallow and corrosion-resisting deck for a new ballasted bridge carrying the Chesapeake & Ohio Railway over a road near Muskegon, Mich., wrought-iron plates have been used. In all 60 tons were required and they are welded together to form a continuous watertight deck.

Pipes in Viaduct Construction

To carry heavy equipment from the Union Pacific Railroad to the powerhouse at the Ice Harbor Dam a single line of railway was laid. This necessitated the construction of a trestle viaduct 177 ft. long and, where it crosses a road near its centre, 47 ft. high. In preference to using timber it was decided to construct the trestles of steel-pipe piling. The piles consist of 12-in. bore piping $\frac{1}{2}$ -in. thick and arranged six abreast to form eight single bents and two central double bents; the outer piles in each bent were driven with a batter. The 72 piles were driven to a minimum depth of 30 ft. to a 40-ton bearing load.

FRANCE

Extension of Miramas Yard

Miramas Marshalling Yard, between Avignon and Marseilles, has become too small because of the greatly increased traffic in the area, and important extension works were put in hand earlier this year. The existing facilities can only handle an average of 1,800 wagons daily, whereas traffic is passing at the rate of 2,200 wagons daily. The ultimate aim is to replace 13 existing 600-m. reception sidings by 16 750-m. sidings, 39 sorting tracks each of 600 m. by 40 900-m. tracks, and nine 600-m. departure sidings by 11 750-m. sidings. The work is being undertaken in stages and is at present confined to the diversion of both tracks

of the main Lyons-Marseilles line over a distance of some 1,300 yd., the diversion of one track over a further 1,100 yd. and the diversion of a number of subsidiary tracks.

Diesel Conversion at Nevers

Because of the appreciable decrease in the use of steam power, the S.N.C.F. is converting a number of workshops, previously handling the maintenance of steam locomotives, to handle diesel and electric units. As part of this programme, the workshops at Nevers will cease to handle steam locomotives and will, in due course, deal only with diesel power. The first stage of conversion is now complete, whereby a decreasing number of steam locomotives and some diesels will be maintained, the hours of work currently allocated to the latter being equivalent to 700,000 a year.

AUSTRIA

Locomotive Construction Losses

The Simmering-Graz-Pauker concern, one of the few remaining locomotive-building firms in Austria, embracing also engineering, boiler-making, railcar and motor vehicle departments, and to which was recently added a department building civil aeroplanes, recorded a substantial net loss of schilling 26,700,000 for 1957. This was due exclusively to the locomotive-building department which is the former Wiener Lokomotivfabrik. This was absorbed by Graz-Pauker some years ago. From the company's report for 1957, published recently, it appears that the locomotive department had secured an important order for steam locomotives for the Indian Railways. Contrary to expectations the order resulted in a loss. The order had been obtained in the period when the concern was still controlled by the Russian authorities of occupation. Total losses in connection with the order aggregated schilling 46,400,000; equivalent to 20 per cent of the company's share capital. In 1957, the last batch of locomotives from the order was shipped.

Publications Received

B.S.449: 1959, An Explanatory Brochure.—The British Constructional Steelwork Association has produced this 46-page work of reference to aid those who comply with and administer the regulations of British Standard 449: 1959, *The Structural Use of Steel in Buildings*. The brochure begins by summarising the historical development of B.S.449 since its first publication in 1932, until May 1959, when the latest revision appeared. It explains the main differences in the layout of B.S.449: 1948 and the present document and gives cross references between the two to enable designers already familiar with the former and its amendments to find equivalent parts in the latter. Forty pages are devoted to a clause-by-clause discussion of the new standard and, where appropriate, there

are given diagrams and examples of calculations based on the regulations. The usefulness of the brochure is enhanced by the inclusion of relevant extracts from B.S.1881, *Methods of Testing Concrete*, and there is a list of the full titles of all other standards and codes of practice to which reference is made. Copies, price 3s. 6d., may be obtained from the British Constructional Steelwork Association, 94/98, Petty France, London, S.W.1.

Geismar Track Machines.—A small 28-page brochure illustrates and gives salient particulars of the wide range of precision-made machines for precision track-laying and repair constructed by the well-known firm of L. Geismar, of Colmar, France, whose machines are widely used by the S.N.C.F. on the heaviest main lines, and in Germany,

Switzerland, Rhodesia and elsewhere. The range includes combined coach-screwing and fish-bolt fastening machines, sleeper drillers, hand tampers, rail grinders, drillers and saws, trolleys with pivoting and cross slides and with rail-loading cranes, and a light and ingenious sleeper-loading machine.

Calendars for 1960.—We have received calendars for 1960 from Talylln Railway Company; New South Wales Government Railways; Le-Tourneau - Westinghouse Company; Brown, Boveri & Co. Ltd.; Swiss National Tourist Office & Swiss Federal Railways; Hawker Siddeley Industries Limited; The D.P. Battery Co. Ltd.; The Hunslet Engine Co. Ltd.; Holman Bros. Ltd.; Permali Limited; Spoorweg Sein Industrie N.V.; Crofts (Engineers) Limited; and Canadian Pacific Railway.

Development in 1960 on the North Eastern Region of British Railways

By T. H. Summerson, D.L., J.P.,

Chairman, North Eastern Area Board, British Transport Commission

THE Plan for the Modernisation of British Railways was published in December, 1954, and promised fulfilment fifteen years from that date. So great, however, has been the progress made that the job will certainly be done well within that time. Indeed, in the North Eastern Region, modernisation (short of electrification) will, so far as we can see, be virtually complete by the end of 1964, though in a live organisation the process is one which never can come to an end.

If the Region can live up to that, it will have been a tremendous achievement. The capital-starvation of the preceding forty years will have been made good in eleven!

The main outlines of the modernisation plan are already well enough known to all readers of *The Railway Gazette* and I will not waste time or space repeating them. Its basic principle is to concentrate on those services, both passenger and freight, in providing which railways have what may be called natural advantages, and to let the roads carry the rest.

The first thing to be done was clearly to modernise the technical equipment—diesel or electric traction in place of steam engines; freight wagons fitted with power-brakes; colour-light signals; track strengthened to carry heavier trains at faster speeds; modern telecommunications; more comfortable, better-equipped

passenger coaches, and so forth.

The second was to rationalise the system and cut out the dead wood, including the branch lines in remoter areas. It sounds absurd, but is plain fact, that the railway network in 1954 was basically the same as it was more than 30 years earlier, when 120-odd former railway companies were merged into the L.N.E.R., L.M.S.R., G.W.R., and Southern Railway under the 1921 Act. Even today, in the North Eastern Region there are still more than 50 separate marshalling yards, all except one manually-operated. Within the next five years most of these will have been closed, and their places taken by six strategically-placed, brand new, mechanised yards, to the infinite improvement of the system.

Third, as decentralisation has come down from the Commission, with the appointment of the Area Boards, so is the process permeating the Regions themselves. The North Eastern Region now has four Traffic Managers—Tyne and Wear, Tees-side, York and Hull, West Riding—their powers embracing Operating, Commercial and Motive Power, with full authority to organise transits and quote rates at short notice and on the spot.

Fourth, to translate the policy of putting road haulage to work for collection and delivery at either end, while

keeping the long main haul in the railway's own hands. This involves the provision of railheads in the form of goods and parcels depots, strategically placed, and of equipment of many sorts for transferring goods from road to rail and *vice versa* quickly and cheaply. The aim is to enable the railways to guarantee overnight delivery between all the principal centres of population of the country.

There are a host of other things to be done. Of these, better public relations are perhaps the most important, as they are certainly the most apparent. Good-looking buildings and equipment of all kinds; well-chosen, cheerful colours; waiting rooms which make the old music hall joke quite out-of-date; clean carriages; proper information as to train running; these are just some of the improvements which are on their way.

In the meantime we can only ask the public to be sympathetic and understanding a little longer. We are in the middle of that always-frustrating stage of transition when great improvements and radical reorganisation are under way but have not quite arrived. It will not be long now. Within the next five years, no long period for so enormous an undertaking, it will suddenly break on the country that British Railways and the services they offer have been transformed.

How the Plan will be Achieved

By H. A. Short, C.B.E., M.C.,

General Manager, North Eastern Region, British Railways

MR. SUMMERSON'S optimistic forecast is no pipe-dream. On the contrary, it is based on the solid achievement of the first five years of our modernisation programme; an achievement of which we in the North Eastern Region are justly proud.

Already we have gone a long way in the changeover from steam to diesel motive power for our passenger train services. The multiple-unit programme for revitalising the local passenger services is virtually complete, and the new diesel electric locomotives for main-line passenger trains are already arriving and being placed into service. The freight train services are regularly being accelerated. No less than 555 fully-braked services now originate in the Region weekly, and this number will be increased along with the recently-introduced "Assured Arrival" and "Export Express" freight services.

The extensive colour-light signalling scheme with power operation at Newcastle is being followed by a similar

re-signalling installation covering the whole of the North main line from Newcastle to Berwick. This project includes centralised traffic control for certain areas. On completion, more than 50 per cent of the East Coast main line of the Region will be equipped with colour-light signalling. More than half the distance between Doncaster and Berwick already has been equipped with the automatic warning system.

As a first step toward improving telecommunications, an up-to-date telephone exchange has been installed at York, and the new system is rapidly being extended to Tees-side, Tyneside, and the Scottish border.

The very latest in modern marshalling yards is in course of construction at Newport (Middlesbrough) to serve the important Tees-side industrial area, a second new yard has been started at Healey Mills in the West Riding, and a third at Lamesley for Tyneside.

The modernisation of freight and

passenger terminals is not being overlooked; an enlarged and mechanised freight depot has been provided at Stockton. Another depot is being built at Hull, and plans are well advanced for centralising and mechanising freight handling at Leeds, Tyneside, and Bradford.

A start has been made on the major operation of combining Leeds City and Leeds Central passenger stations with modern amenities and the most up-to-date facilities on the site of the present Leeds City Station.

Turning from transport by land to transport by sea, the modernisation of the fleet operated by Associated Humber Lines Limited has been completed, and all our passenger/cargo services operating between Hull and Goole and the Continent are by vessels which have been built since the war, the majority during the past five years.

This is surely an impressive record of achievement and a real promise of modernisation in our time.

Diesel Multiple-Unit Operation in the North Eastern Region

New approach to passenger traffic appreciated by public and staff and produces early financial improvement

*By F. L. Hick,
Assistant Operating Officer*



Four-car diesel train entering East end of Newcastle Central Station

A NEW spirit is evident on the local passenger lines of the North Eastern Region. Diesel trains are bringing new life and hope, higher revenue, and better punctuality. Soon, they will cover all the local services on the Region. By summer of next year the conversion from local steam train to diesel multiple unit will be complete.

New Approach

There is no denying that this new and vigorous approach to local passenger travel is having a considerable impact on both public and staff. Where potential exists, receipts have bounded up and expenditure dropped and, although in some areas the possibilities of greater traffic are limited, services are being operated more efficiently and economically than they were with steam. This article tries to show how the Region aims to gain the maximum benefit from its modern equipment.

The progress which has been made since the first multiple-unit scheme—between Bradford, Leeds, and Harrogate—has been consistent. Right from the start, plans were confidently made to cover all appropriate services as fast as units became available. Their introduction achieved reductions in working costs quickly, increased revenue immediately, and made a direct appeal to the public, as well as becoming a source of encouragement to the staff. It was in the North Eastern Region that railway steam traction first made its appearance; and it

is in the same Region that the first experiment with the new diesel cars has been made.

The pros and cons of diesel multiple-unit, compared with steam working have been often summarised. Despite teething troubles, experience so far has been such as to confirm the original concept. Planning, maintenance, and servicing have comprised an immense job, especially as the first few schemes had to be prepared without the benefit of very much experience. Maintenance and servicing depots had to be strategically placed in relation to the new schemes. Timetables based on interval working and diagrams of men and vehicles had to be worked out and, in the early stages, a good deal of speculation was necessary to assess requirements. In other words, calculated risks had to be taken to meet the urgent need for securing the benefits of diesel traction at the earliest possible moment.

It was for the summer of 1954 that

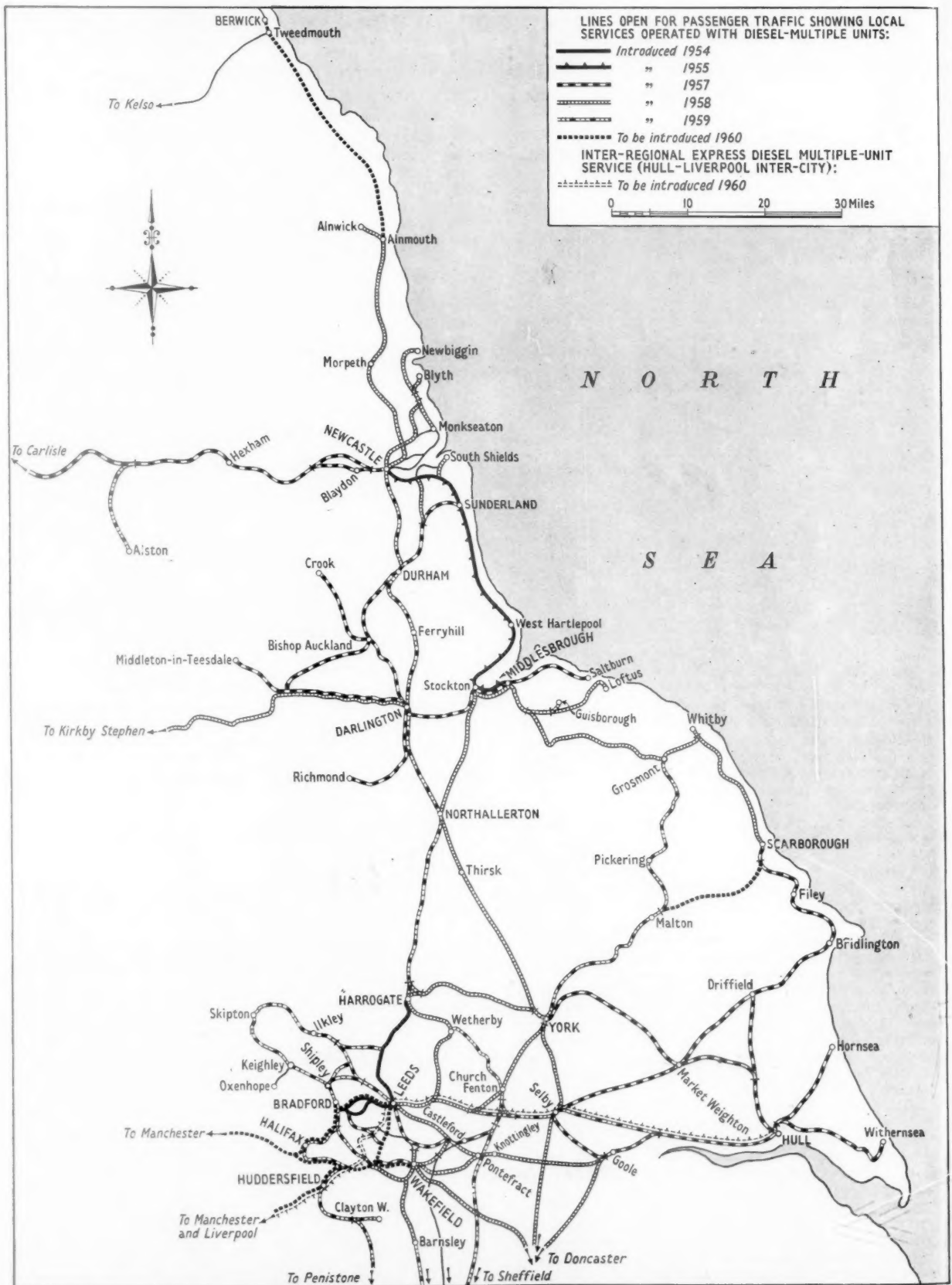
the first delivery—eight twin-car sets of two-power cars coupled together—was made, each equipped with two 125-h.p. Leyland engines for the Bradford-Leeds-Harrogate run. The weight of each set was 54 tons, giving a high power : weight ratio for quick acceleration and satisfactory operation over the severe West Riding gradients.

Seating for 130

The seating accommodation coped with 130 passengers, and seats were arranged facing or back to the direction of travel so that passengers could be selective in this respect. The service was arranged as between Bradford Exchange and Leeds Central on a half-hourly interval basis with every other train throughout most of the day projected to Harrogate, and provided for a substantial mileage increase. This choice was made because of the traffic potential between the two centres of population, and that it has been justified by result is shown below.

BRADFORD (EX)—LEEDS (CEN)—HARROGATE—KNARESBOROUGH SERVICE

| 12 months ending May | Receipts (internal branch bookings only) | Increase over previous year | Increase over last 12 months (steam) | |
|----------------------|--|-----------------------------|--------------------------------------|-----------|
| | £ | £ | £ | per cent. |
| 1954 | 23,173 | — | — | — |
| 1955 | 32,157 | 8,984 | 8,984 | 38 |
| 1956 | 50,343 | 18,186 | 27,170 | 117 |
| 1957 | 99,026 | 48,683 | 75,853 | 327 |
| 1958 | 115,961 | 16,935 | 92,788 | 400 |
| 1959 | 118,503 | 2,542 | 95,330 | 411 |



Map showing lines open for passenger traffic in the North Eastern Region of British Railways, and indicating local services operated with diesel multiple-units

Receipts are still going up.

It will be seen that the public has responded to this first tangible result of the modernisation plan quickly and, it seems, permanently, and the impact

services is apparent, both on the platform and along the line.

As far as possible, the overall plan was designed to direct diesel units where reduced expenditure and increased re-

increased engine power (from a standard of two 125-h.p. engines per motored car to two 150-h.p. engines). Services were provided with trains comprising from two to eight vehicles according to

| Service | Date of Introduction | Monthly Period | Ended | Motive Power | Receipts £ | Increase £ | Per cent |
|---|----------------------|----------------------------|---|---|---|---|-----------------------|
| Newcastle-Middlesbrough ... | Nov. 21, 1955 | 12 12 12 12 12 | Oct. 1955 Oct. 1956 Oct. 1957 Oct. 1958 Oct. 1959 | Steam Diesel Diesel Diesel Diesel | 207,310 260,378 312,312 333,939 335,759 | + 53,068 + 51,934 + 21,627 + 1,820 | 26 19 7 0.54 |
| Hull-Withernsea ... | Jan. 7, 1957 | 12 12 12 10 | Dec. 1956 Dec. 1957 Dec. 1958 Oct. 1959 | Steam Diesel Diesel Diesel | 21,840 39,173 41,500 *41,593 | + 17,333 + 2,327 + 3,831 | 79 6 10 |
| Hull-Hornsea ... | Jan. 7, 1957 | 12 12 12 10 | Dec. 1956 Dec. 1957 Dec. 1958 Oct. 1959 | Steam Diesel Diesel Diesel | 22,125 34,521 35,877 *35,925 | + 12,396 + 1,356 + 3,650 | 56 4 11 |
| Newcastle-Carlisle ... | Feb. 4, 1957 | 12 12 12 9 | Jan. 1957 Jan. 1958 Jan. 1959 Oct. 1959 | Steam Diesel Diesel Diesel | 116,408 151,631 158,024 *126,815 | + 35,223 + 6,393 + 3,581 | 30 4 2.9 |
| Bradford (Ex)-Wakefield K. ... | Feb. 25, 1957 | 12 12 12 9 | Jan. 1957 Jan. 1958 Jan. 1959 Oct. 1959 | Steam Diesel Diesel Diesel | 3,529 12,074 13,692 *9,613 | + 8,545 + 1,618 — 1,069 | 242 13 10 |
| Leeds Cen.-Castleford (extended to Pontefract Mar. 3, 1958) | Feb. 25, 1957 | 12 12 12 9 | Jan. 1957 Jan. 1958 Jan. 1959 Oct. 1959 | Steam Diesel Diesel Diesel | 5,711 14,406 16,800 *13,291 | + 8,695 + 2,394 + 185 | 152 17 1.4 |
| Darlington-Saltburn ... | Aug. 19, 1957 | 12 12 12 | July 1957 July 1958 July 1959 | Steam Diesel Diesel | 123,590 161,376 190,804 | + 37,786 + 29,228 | 30 18 |
| Darlington-Crook ... | Sept. 16, 1957 | 12 12 12 | Aug. 1957 Aug. 1958 Aug. 1959 | Steam Diesel Diesel | 13,838 14,813 18,064 | + 975 + 3,251 | 7 22 |
| Darlington-Penrith ... | Feb. 3, 1958 | 12 12 8 | Feb. 1958 Feb. 1959 Oct. 1959 | Steam Diesel Diesel | 7,294 8,482 *5,844 | + 1,188 — 921 | 17 13.6 |
| Leeds (City)-Barnsley (Ex) via Wakefield (K) | Mar. 3, 1958 | 12 12 8 | Feb. 1958 Feb. 1959 Oct. 1959 | Steam Diesel Diesel | 5,547 41,591 *31,783 | + 36,044 + 2,463 | 650 8.4 |
| Hull - Goole - Wakefield - Leeds - Bradford (Ex) via Knottingly | Mar. 3, 1958 | 12 12 8 | Feb. 1958 Feb. 1959 Oct. 1959 | Steam Diesel Diesel | 20,212 27,556 *22,503 | + 7,344 + 2,033 | 36 9.9 |
| Newcastle-Morpeth-Alnmouth-Alnwick | April 14, 1958 | 12 12 7 | Mar. 1958 Mar. 1959 Oct. 1959 | Steam Diesel Diesel | 17,166 19,038 *11,176 | + 1,872 — 941 | 11 7.7 |
| Middlesbrough-Whitby-Scarborough | May 5, 1958 | 12 12 6 | April 1958 April 1959 Oct. 1959 | Steam Diesel Diesel | 36,159 53,741 *48,553 | + 17,582 + 4,832 | 48 11 |
| Monkseaton-Blyth-Newbiggin ... | June 9, 1958 | 12 12 | May 1958 May 1959 | Steam Diesel | 25,546 29,413 | + 3,867 | 15 |
| York-Harrogate ... | Aug. 18, 1958 | 12 12 | July 1958 July 1959 | Steam Diesel | 10,463 14,984 | + 4,521 | 43 |
| Leeds Bradford-Keighley-Ilkley-Skipton | Jan. 5, 1959 | 6 6 | June 1958 June 1959 | Steam Diesel | 60,597 90,001 | + 29,404 | 49 |

(See separate graph) * Represents increase or decrease over the corresponding period in 1958.

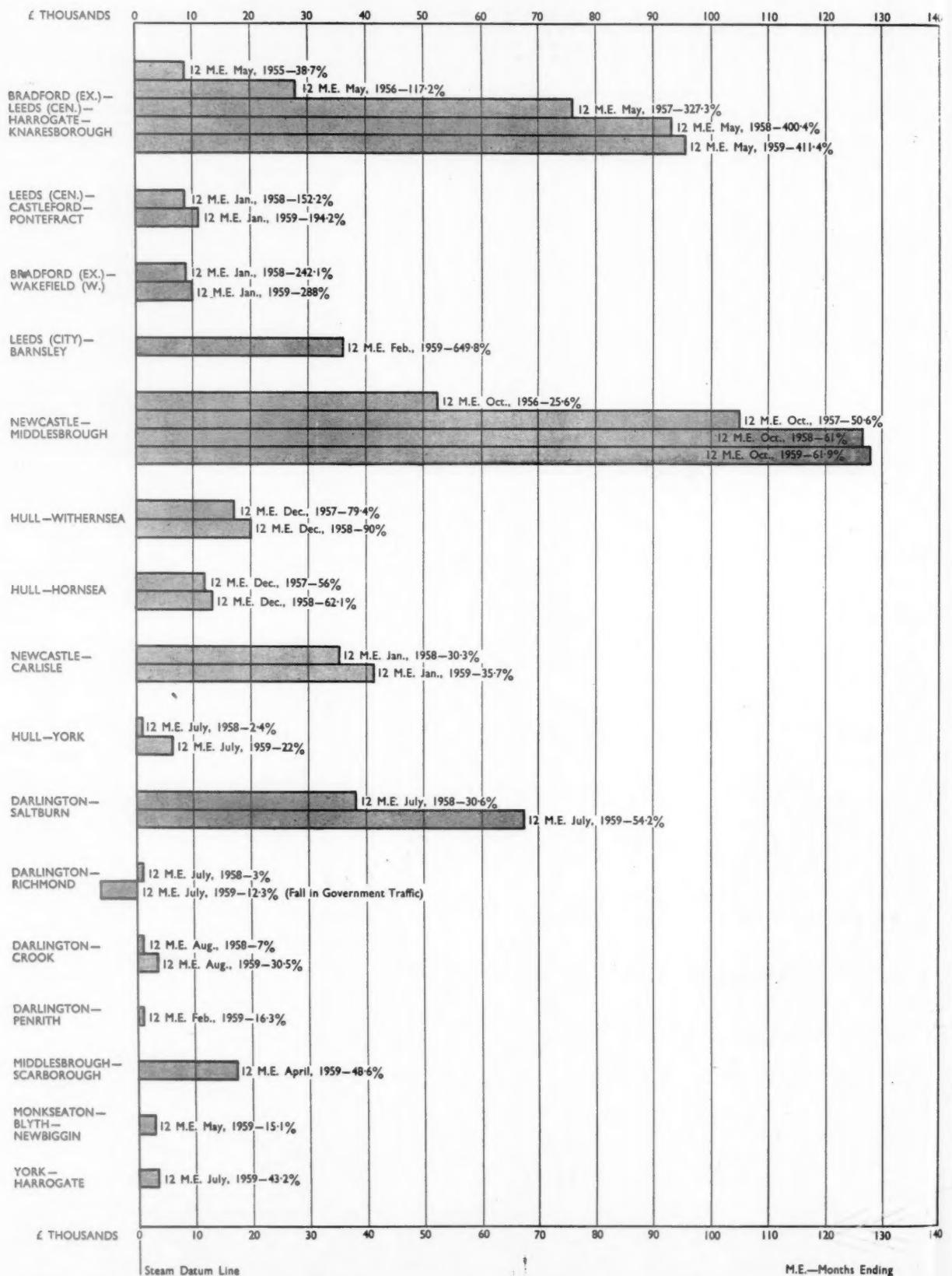
of the new mode of travel—clean, attractive, forward-looking—is unmistakable. Not only has there been a public response, but there has also been an uplift in staff morale, and wherever diesels have been introduced a more brisk and businesslike attitude to train

receipts would yield the best results most quickly. The table on this page gives introductory dates of schemes and details of receipts (internal branch bookings only) for appropriate periods.

As production of the units developed, new features were embodied, including

requirements. For certain services requiring more horsepower two 180-h.p. engines are being provided for each motored car.

The schemes required to complete dieselisation of local services will cover such lines as the Leeds-York-Scarborough



RESULTS OF DIESEL SERVICES ON THE NORTH EASTERN REGION

Graph showing increased receipts since introduction of services (internal bookings only)

route and certain branch lines in the West Riding.

Not only have receipts increased, but annual operating savings resulting from the introduction of railcars have been substantial, and an estimate of yearly economies is given below.

| Scheme | £ |
|--------------------------------|----------------|
| West Riding | 183,675 |
| Newcastle-Middlesbrough | 18,744 |
| Newcastle-Carlisle | 71,900 |
| Combined Northern | 164,170 |
| Hull District | 176,856 |
| Darlington District | 140,483 |
| York District | 195,402 |
| Main Line | 1,968 |
| Total | 953,198 |

Economies will increase as other schemes are introduced.

The cost of the units is approximately £8½ million and that of new works is approximately £1½ million.

Some "Shaky" Sections

Among the various projects which in their justification showed substantial annual operating savings and have in operation attracted additional revenue, there must inevitably be sections of line which are somewhat "shaky." Some of the lines were never expected to show first class results, and diesels were introduced to test the resilience of the area to a new and more economical form of traction. In any event, they provided a more economical means of working, and it remains to be seen whether they can justify their existence.

If they cannot properly pay their way they will have to be abandoned and, with the modern trend of increased travel by private car, motor cycle, scooter, etc., the use of railways in certain areas is likely to disappear. There will undoubtedly be cases where even the more economical method of diesel rail operation will not save branch lines from closure.

Before drastic action is taken in the removal of a service, however, a sound assessment will be made, and full and imaginative consideration given to all possibilities of improving net revenue. Every cost feature will be examined minutely so that waste is eliminated, but in this connection much research is still needed and new techniques have to be studied. A reduced staff is essential and more productivity will be required from each individual.

Savings are being sought in various directions—for example, on the lesser-used lines by the introduction of Conductor Guards who will issue tickets on trains. While Conductor Guards have been used on a small scale previously, a more important scheme is to operate from January 4, 1960, on the Hull-Hornsea and Hull-Withernsea branches as part of an endeavour to make the services pay.

About 40 Passenger and Porter Guards are to be trained to deal with passengers joining intermediately at 15 stations which will become unstaffed halts. The services involve a daily total of 38 trains



Interior of one of the new diesel multiple units

in the winter months, and this number will be increased during the summer of this year.

Intermediate passengers will be required to join a selected section of each train and both branches will become second class only.

Where potential exists it is intended to provide and maintain a service at regular intervals to suit the traffic, bearing in mind that we are bound to experience peak loadings and light loadings, not only daily and weekly, but also seasonally. Our minds will be concentrated on meeting this position by planned cuts in train formations so that running costs are kept to a minimum. At the same time, the technique of diagramming men and coaches will be designed to work the maximum amount of traffic with the minimum amount of stock.

Inter-City Services

An inter-city scheme sponsored by the North Eastern Region will operate between Hull and Liverpool via Leeds, Huddersfield, and Manchester. It is obviously desirable that there should be a good service between three of the most important ports in the country, while the traffic potential, particularly as between Leeds and Manchester, is considerable. To meet these requirements six-car trains will operate, and there will be a total horsepower of 1,840, comprising four motored cars with two 230-h.p. underfloor motors each. Specially designed vehicles are to be introduced as it is important for the service to make a real impact on the public. The interior of the vehicles will be attractive and a buffet car of new design will be included.

Trains will leave Leeds for Manchester and Liverpool at 50 min. past the hour, through trains from Hull at even times forming part of the interval service. The aim has been to try to achieve a reduced journey time compared with

that achieved by steam between Leeds and Manchester, and, with a 2-min. stop at Huddersfield and a 1-min. stop at Slatybridge plus recovery time for permanent way restrictions, the timing will be just over the hour.

The vehicles alone will cost approximately £1 million, so that quite a lot of additional traffic is needed to meet interest and depreciation charges, in addition to working costs. There is enormous traffic potential in the two large industrial areas of the West Riding and Lancashire.

Associated with the inter-city scheme will be a complete revision of the surrounding feeder and other local services. There will be an hourly interval service from Leeds Central at 6 min. past the hour via the Lancashire & Yorkshire Todmorden route to Manchester, gathering traffic from Bradford, Halifax, and other important points on the route. Interval services will be run over the London & North Western route, via Huddersfield, serving intermediate points, and will be designed to fit into and out of express services. The departures via the Lancashire & Yorkshire route are to be staggered with those over the London & North Western line.

Mileage

The North Eastern Region leads in the percentage of passenger mileage operated by diesel traction—at the four weeks ended November 1, 1959, 41·8 per cent of the coaching mileage in the Region was covered by this means.

A network of diesel-operated local services has been built up area by area. The Region now has 678 railcars and, by the summer, the total and completed stock will be 768 (exclusive of inter-city). These vehicles will work the whole of the local services with such exceptions as local parcels trains and the odd steam train which has a special function to perform.

Calcutta-Assam Line Improvements

A relief line, a shorter future route, and a new Ganges barrage-bridge

ON July 12 a new 16-mile metre-gauge line constructed by the North-East Frontier Railway from Kumedpur (on the Katihar - Malda - Singhabad branch) to Barsoi on the main line to Assam, was officially opened by the Railway Minister. Built in the remarkably short period of six months, the new line was estimated to cost £750,000.

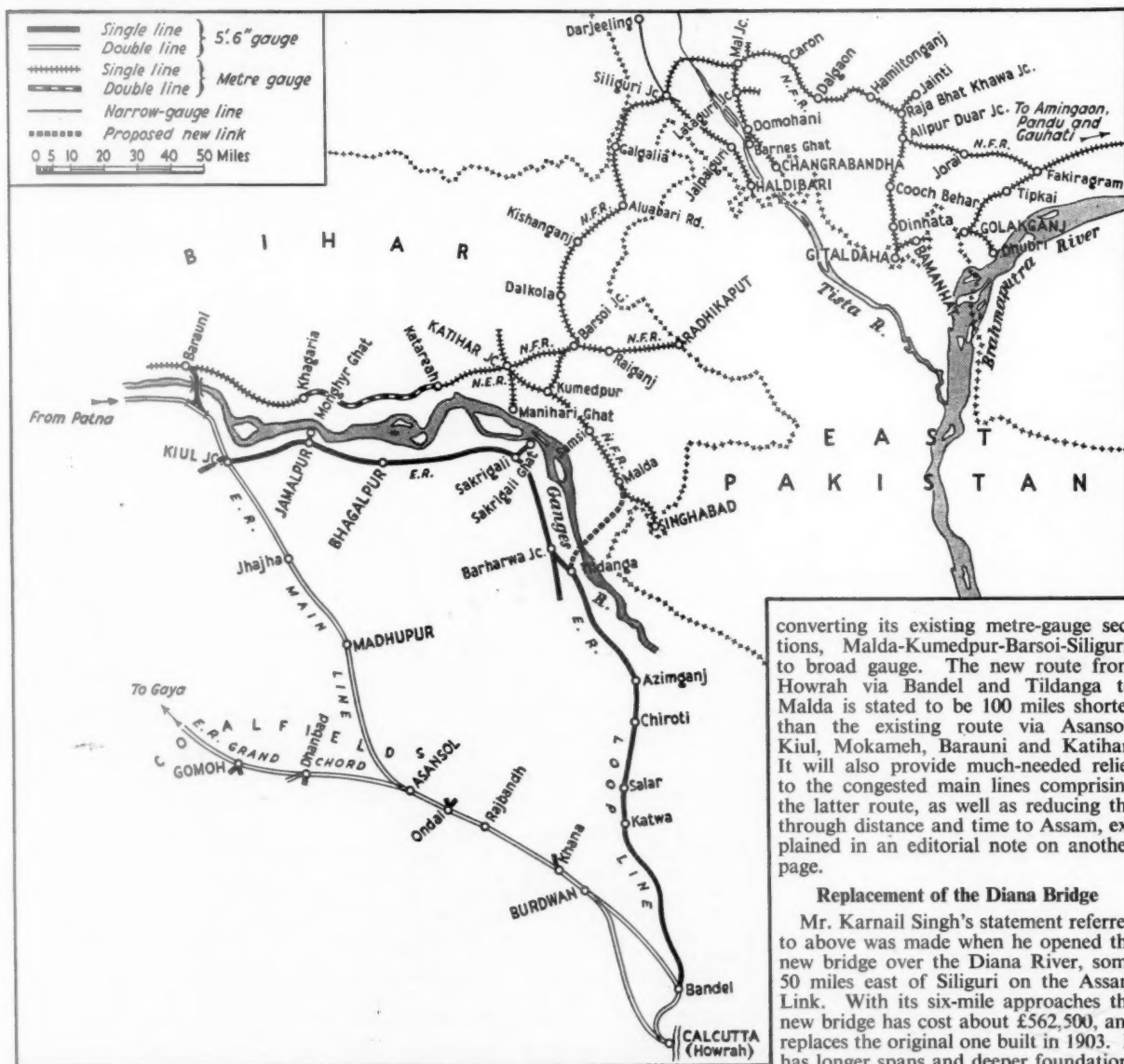
Though this short section of line is ostensibly to relieve the pressure of heavy traffic between Katihar and Barsoi and provide a reliable all-weather route from Calcutta and from North-west India to Assam, it is also likely to

have a more important role in the not-far-distant future. For Mr. Karnail Singh, Member Engineering, Railway Board, announced two days later that the Government of India had decided to construct a shorter through route from Calcutta to Assam by building a link from Tildanga—on the Bandel-Barharwa 5 ft. 6 in. gauge section of the Eastern Railway—via Farakka and Khejuriaghat to Malda; he said the work would be undertaken very shortly.

It is now reported that a barrage across the Ganges is projected at Farakka. Also that a 5 ft. 6 in. gauge line is eventually

to be constructed from Tildanga crossing the river over the barrage to Malda, Kumedpur, Barsoi and Siliguri. Until such time as the barrage is completed a wagon-ferry of that gauge is to be provided between Farakka and Khejuriaghat in place of a bridge. The Eastern Railway is preparing to build the line from Tildanga to Farakka and the work will be in hand before March, 1960.

The next link in the new through chain from Khejuriaghat to Malda is to be constructed by the North-East Frontier Railway administration, which will also, presumably, be responsible for



converting its existing metre-gauge sections, Malda-Kumedpur-Barsoi-Siliguri, to broad gauge. The new route from Howrah via Bandel and Tildanga to Malda is stated to be 100 miles shorter than the existing route via Asansol, Kiul, Mokameh, Barauni and Katihar. It will also provide much-needed relief to the congested main lines comprising the latter route, as well as reducing the through distance and time to Assam, explained in an editorial note on another page.

Replacement of the Diana Bridge

Mr. Karnail Singh's statement referred to above was made when he opened the new bridge over the Diana River, some 50 miles east of Siliguri on the Assam Link. With its six-mile approaches the new bridge has cost about £562,500, and replaces the original one built in 1903. It has longer spans and deeper foundations—because the old structure was frequently damaged by the river in flood—and should reasonably ensure uninterrupted traffic on this trunk route.

Map showing the projected link Tildanga-Malda, and the Malda-Siliguri section to be converted from metre to broad gauge. Note the existing and proposed routes via Barauni and via Malda

Centralised Traffic Control in Western Australia

Completion of first stage of scheme covering 35 miles of single track between Armadale and Pinjarra



Colour-light signals on the approach to the station platforms and yard at Armadale, the northern terminal of the C.T.C. system

THE first stage of the most extensive system of Centralised Traffic Control in Australia was completed recently on the Western Australian Government Railways. The system, which is controlled from a central panel in Perth, at present covers all operations on 35 miles of single-line track between Armadale, 19 miles from Perth, and Pinjarra. The main scheme covers the installation of C.T.C. between Armadale and Brunswick Junction, 99 miles from Perth, with major interlockings at Armadale and Pinjarra.

Concurrent with the installation, all crossing loops have been extended to 3,000 ft., heavier rail has been laid and high-speed turnouts with 23 ft. reinforced switch blades and 1 in 14 crossings have been installed to permit higher speeds into and out of the loops. Crossing stations are located at Byford, Mundijong, Serpentine, Keysbrook, North Dandalup and Venn. Intermediate sidings at Cardup and Mardella are switch-lock controlled with track circuit release.

Searchlight signals approach lighted and using 12 V. 12 W., 16 V. 6 W. double-filament lamps are used throughout. Power-switch machines operate on 36 V. d.c. and detect both switch blades. Conventional d.c. track circuits fed from primary batteries are installed, those at crossing loops where standing may be excessive having rectifier units with compensation for train shunt current. Four-wire block circuits on the single-line sections between crossing loops and complete segregation of all the battery supplies have been carefully preserved and common returns connecting several sources of supply have been avoided.

This ensures added protection against faulty insulation and facilitates insulation testing and the location of faults.

Power Supplies

To provide power for the isolated intermediate signals and those crossing loops where ordinary commercial and domestic supply is not available, a signal power line has been run through the complete section. This is fed at 3.3 kV. with step down transformers where required feeding 110 V. for rectification to direct current. Step down transformers are located on small gantries at intermediate

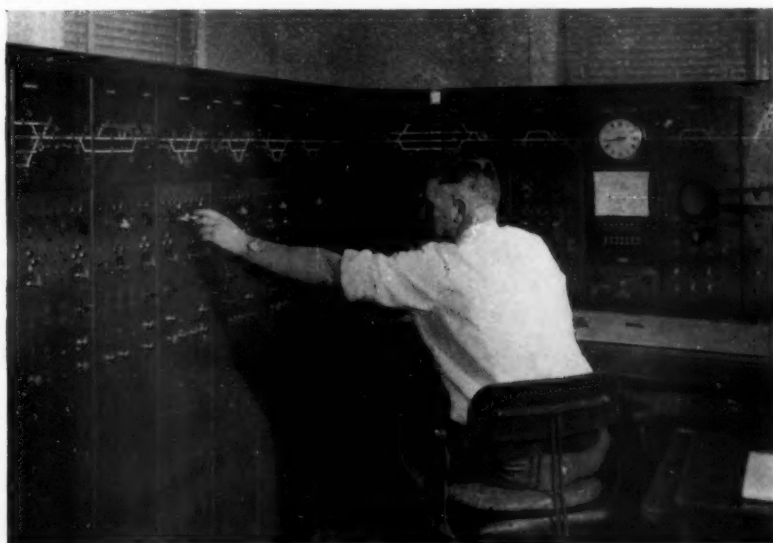
signals and at crossing loops. Relays, rectifiers and batteries are housed in 8 ft. 6 in. by 20 ft. and 8 ft. 6 in. by 10 ft. cabins at the crossing loops, the larger cabin also housing the field coding equipment. The larger cabin is located at the end of the crossing loop which has the most convenient road access. The cabins have an annex at the end open to traffic employees and housing telephones, motor crank handles, pilot keys and safe working forms on a small wall-mounted desk.

Control Panel

The C.T.C. control machine is located in Perth. It is of the conventional type with a track diagram, indication lamps, points and signal levers with associated indication lamps, subsidiary signal key controls, approach lock release buttons and the staff buttons. Track occupancy lamps are normally dark and show red when a train is in the section. Dual-lamp units behind the track diagram pipe plastic light to each half of the circular indication. Lamp failures are thus obvious to the C.T.C. controller.

C.T.C. controls and indications to Pinjarra are transmitted direct with line battery on line. Those beyond Pinjarra will be transmitted by carrier frequency to Pinjarra and then line battery at Pinjarra to line. The C.T.C. control line also carries a selector telephone system giving telephone calling facilities to all stations between Perth and Bunbury for normal train control, train loading information and other usual requirements. Speech may continue as C.T.C. codes are transmitted. The push button telephone selector panel is incorporated into the C.T.C. machine.

The Centralised Traffic Control of the



C.T.C. panel at Perth, showing the Armadale-Pinjarra section now in operation

points and signals and the associated indications of the train movements on this installation is the usual time-code system. The code has 16 steps these being either short or long. The long steps other than the first and last convey information. The first step of a control code is always long and thus has preference on simultaneous starts over indication codes which commence with a short step. Steps two to eight are for station selection and three are always long. Steps nine to 15 are for control or indication and the sixteenth step is extra long for clear down.

The system of C.T.C. covers portion of the South Western main line, which

connects Perth, the capital of the State with the Collie Coalfields and with the agricultural and timber areas of the lower South West. Except for the short single-line section of 2½ miles over the Swan River, between East Perth and Rivervale, the line is doubled to Armadale. This section, in addition to through goods traffic, carries regular passenger services.

Automatic Signalling with remote control has been in operation between East Perth and Rivervale for four years and caters adequately for the existing train services. From Armadale south, the line is single and carries mainly heavy goods traffic. Since C.T.C. working has been instituted major economies

in station staff have been possible, and train running times have improved.

The installation was engineered by the Signal & Telecommunications Sub-Branch of the W.A.G.R. under Mr. D. C. Curtis, Signal & Telecommunications Engineer, and the installation work was done by the Branch construction forces directed by Mr. T. T. Eldridge, Engineer.

The principal items of equipment were supplied by the Westinghouse Brake & Signal Co. Ltd., the Siemens & General Electric Railway Signal Co. Ltd., and Metropolitan-Vickers-G.R.S. Limited, all of England, and McKenzie & Holland Pty. Limited, of Melbourne, Victoria.

Overseas Telex Installation in the Eastern Region

Improved reservation facilities for Continental passengers

SUBSTANTIALLY improved communication with the Continent, using the Overseas Telex system and a point-to-point private wire circuit between Liverpool Street Station (Harwich House) and Utrecht in Holland, has now been provided to cater for the ever-increasing number of passengers using the Continental services of the Eastern Region of British Railways. With an internal office re-organisation and the installation of modern equipment, the time taken to complete an overseas reservation has been drastically reduced.

The new equipment provides direct communication with railway offices; principal travel agents; forwarding agents; and important business concerns both in the United Kingdom and on the Continent. Situated in Harwich House, Bishopsgate, the headquarters

of the Continental Traffic & Shipping Manager, Eastern Region, the new berthing and reservation office now undertakes the work previously carried out in three separate offices.

The mainspring of the new office is the teleprinter room, an enclosed portion of the main office soundproofed to eradicate any noise interference to the outer room. The equipment here includes the Post Office Telex service machine, operating on number 25249; a teleprinter connected to the British Railways network; and, in conjunction with the Netherlands Railways, a point-to-point teleprinter private wire circuit between Harwich House and the Netherlands Railways headquarters in Utrecht.

In the main berthing and reservation office, additional telephone facilities, involving the installation of separate

keyboards on a number of desks, have been provided. In addition to the substantial improvement in the reservation facilities between this country and the Continent either by the Overseas Telex service or the Liverpool Street-Utrecht private wire circuit, the latter affords retransmission of messages throughout the Continental Railways' teleprinter network, including British Railways offices in Bale, Brussels, and Cologne.

Hook of Holland Office

A new office for reservation work has recently been constructed by the Netherlands Railways at the Hook of Holland. Messrs. Hudig & Pieters, the British Railways agents in Holland have, in conjunction with the Zeeland Steamship Company installed telephone and teleprinter equipment.

Transmissions via the private wire circuit can be switched through to Messrs. Hudig & Pieters, enabling a speedy return reservation service to be operated. Through the same channel, reservations for T.E.E. trains are being effected and teleprinter communication has also been established with the Netherlands Railways reservation office at Rotterdam responsible for reservations on Continental expresses from the Hook of Holland. At Harwich, Parkeston Quay, Telex facilities have been installed in the Shipping & Port Superintendent's office.

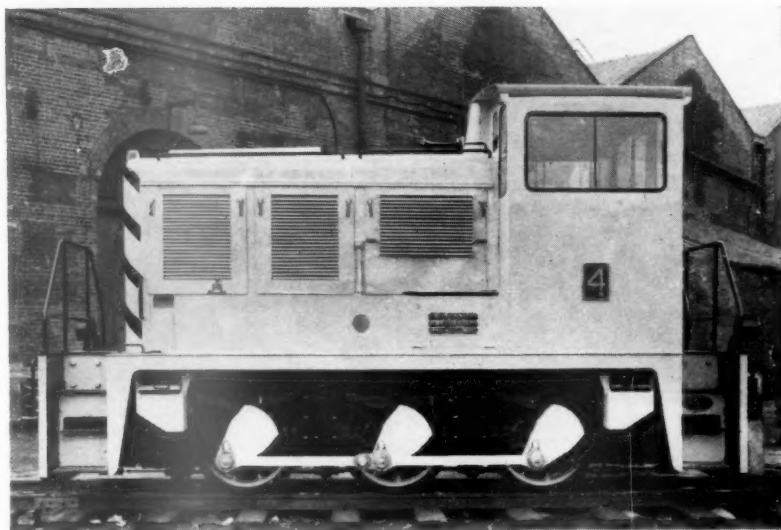
The improvements and design of the new reservation office at Harwich House were carried out, under the general direction of Mr. A. K. Terris, Chief Civil Engineer, Eastern Region, by Mr. H. H. Powell, Regional Architect. The telecommunication work was the responsibility of Mr. R. A. Green, Signal Engineer, Eastern Region, in collaboration with the Post Office authorities. Mr. K. J. Cook, formerly Chief Mechanical & Electrical Engineer, Eastern & North Eastern Regions, was responsible for the installation of the power supply for the teleprinter equipment.



Teleprinter room at Harwich House, showing Telex machine on the right

Industrial Locomotive for British Guiana

3-ft. 6-in. gauge 0-6-0 design for mining project



The diesel-electric locomotive on test track showing shunter's footsteps inset at corners and handrails. Both outer axles are motored

and buffing shocks. Buffer beams extend to within 5½ in. of the rail and provide protection for the traction motor gear-cases and coupling rods. Steel platform plates welded together to form a continuous one-piece cover over the main frame eliminate the possibility of oil or water seepage into the electric traction equipment.

Roller-bearing Axleboxes

Timken grease-lubricated roller-bearing axleboxes and steel axlebox guides are fitted. Both the axleboxes and axlebox guides have liners of manganese steel. The axlebox guides are rigidly secured to the frame plates by turned driving-fit bolts. Alliance automatic couplers with Spencer Moulton rubber draft gear are fitted at both ends of the locomotive. The coupler height from the rail is 2 ft. 10 in.

The driver's cab is totally enclosed and has heat insulation by a double-skin roof with an air gap and glass-fibre side insulation. The whole structure is of welded construction from steel plate and flat bar. One entrance door is arranged in the cab back. All windows are of safety glass. Those at the sides slide open and the inner driving windows on the cab front plate are half-drop opening type. The main driving windows are equipped with wipers.

The driver's control cabinet is set against the cab front plate and the controls are arranged for right or left hand drive with a seat at each side. The lower cabinet contains the electrical control equipment and the upper cabinet the control rods and levers and the brake valve and handles.

An instrument panel on the top of the control cabinet contains a battery charge ammeter, oil pressure gauge, coolant temperature gauge, speedometer, and duplex pressure gauge.

FOLLOWING the delivery of three 400-h.p. Bo-Bo diesel-electric locomotives, described in our January 23, 1959, issue, to British Guiana for the African Manganese Co. (Mines Management) Ltd., the Yorkshire Engine Co. Ltd. of Sheffield, has completed a 230-h.p. 3-ft. 6-in. gauge diesel-electric shunting locomotive for the same project.

The leading particulars are as follows:—

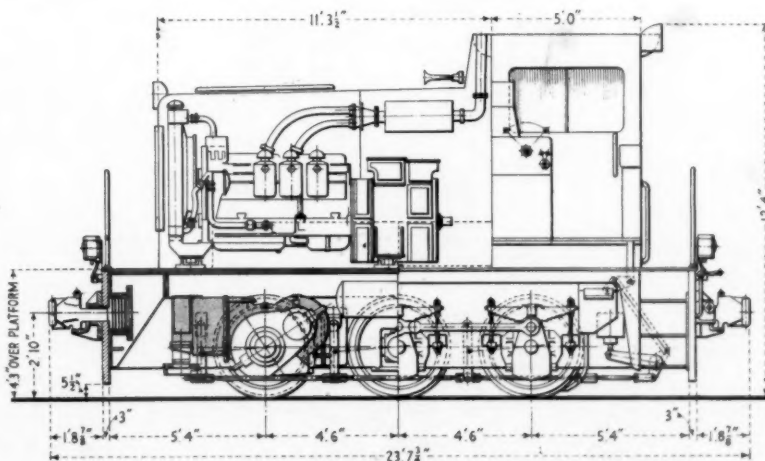
| | |
|---|--|
| Wheel arrangement | 0-6-0 |
| Total adhesive weight | 33 tons |
| Maximum axleload | 11 tons |
| Traction effort, starting | 22,000 lb. |
| Traction effort, continuous at 4.5 m.p.h. | 11,800 lb. |
| Traction effort percentage of adhesion nominal | 30 per cent |
| Gauge | 3 ft. 6 in. |
| Total wheelbase | 9 ft. 0 in. |
| Length over headstocks | 20 ft. 2 in. |
| Total height | 12 ft. 4 in. |
| Width of cab | 8 ft. 4 in. |
| Fuel capacity | 200 imperial gal. |
| Traction motors | 2 B.T.H. type 119Z with double-reduction gearbox |
| Gear ratio | 20.8:1 |
| Traction generator | 1 B.T.H. type RTB. 7426. |
| Diesel engine | 1 Rolls-Royce type C8NFL. |
| Power available for traction (input to generator) | 210 h.p. |
| Maximum speed | 18 m.p.h. |

Although this unit is based on a standard design, powered by a Rolls-Royce diesel engine and with electric transmission and ancillaries supplied by the Traction Department of the British Thomson-Houston Co. Ltd., (now part of the A.E.I. Traction Division) many features have been incorporated to obtain the maximum interchangeability with the Bo-Bo locomotives. For instance, the same design of traction motor is used for both types of locomotive, but the two which drive the smaller unit are geared down to suit shunting duties. The single C8NFL engine and main generator unit is similar

to those installed in the twin-engine Bo-Bo locomotives, and is carried resiliently, complete with radiator, on special four-point mountings without a sub-frame.

The locomotive is of the three-axle rigid-frame type with the two outer axles motored and all six wheels connected with fly cranks and coupling rods.

The main frame is constructed from steel plates and steel stretchers, the frame plates arranged outside the wheels. Dragboxes are fabricated from steel plates and a fabricated-steel stretcher extends continuously from end to end. The frame is further stiffened with steel stretchers, the whole structure being designed to withstand heavy traction



Locomotive side elevation part-sectioned to show power unit and one traction motor

The superstructure is fabricated from steel plates and sections and includes two main power compartments which are designed to allow the best possible outlook from the cab. Removable lift-off doors give easy access for maintenance. There are louvres in the engine compartment and filter panels in the generator compartment doors.

Dust and Rain Exclusion

The whole of the superstructure is designed for dust exclusion and for working under conditions of torrential rain. There is a gangway at each end of the locomotive and handrails are provided where necessary. Shunter's footsteps are inset at the four corners.

Equipment includes a Westinghouse straight air brake and a hand-operated parking brake. Each wheel has a single cast-iron brake block and the gear is fully adjustable for wear.

The Rolls-Royce C8NFL diesel engine is of the vertical liquid-cooled normally-aspirated four-stroke direct-injection type. The bore and stroke are 5½ in. and 6 in. respectively. The swept volume is 990.18 cu. in. and the compression ratio 16:1. The traction rating at 1,800 r.p.m. is 233 h.p. gross with 210 h.p. available for traction (input to generator). A battery-charging generator of 960W. output at 24V. is mounted on the engine and belt driven with the radiator fan from a pulley on the free end of the crankshaft. The belt-driven air com-

pressor is also engine mounted and has a capacity of 15 cu. ft. per min.

The B.T.H. flange-mounted traction generator, type RTB. 7426, has insulation entirely of mica, glass, and asbestos of the highest grade for operation at 215V. The drive end of the hollow cylindrical armature spider is carried direct on the engine coupling spigot which drives on the maximum diameter of the spider to reduce torsional vibrations.

Repairs Simplified

Access to the commutator and brush-gear is provided by large openings in the fabricated steel barrel-type magnet frame sides. Repair work is simplified by making the individual magnet poles removable from the frame without displacing the armature, but the latter can be removed when necessary without disturbing the bearings as these are of the cartridge type, oil-lubricated and self-aligning. The two axle-hung outwardly-suspended B.T.H. type 119Z four-pole series motors are insulated for 600V. and self-ventilated. The magnet frame is a steel fabrication flange-mounted to the gear case assembly.

The gearbox casing consists of two parts which are joined on a line across the bore of the axle-way and the bore of the intermediate shaft bearings. The intermediate shaft self-aligning bearing cartridges may be jacked sideways to disengage the first reduction spiral bevel drive. This operation can be carried out

without opening the gearbox, and allows high-speed towing of the locomotive. The torque reaction of the complete motor and gearbox assembly is taken by a link to the locomotive structure, containing a resilient rubber bush at each end.

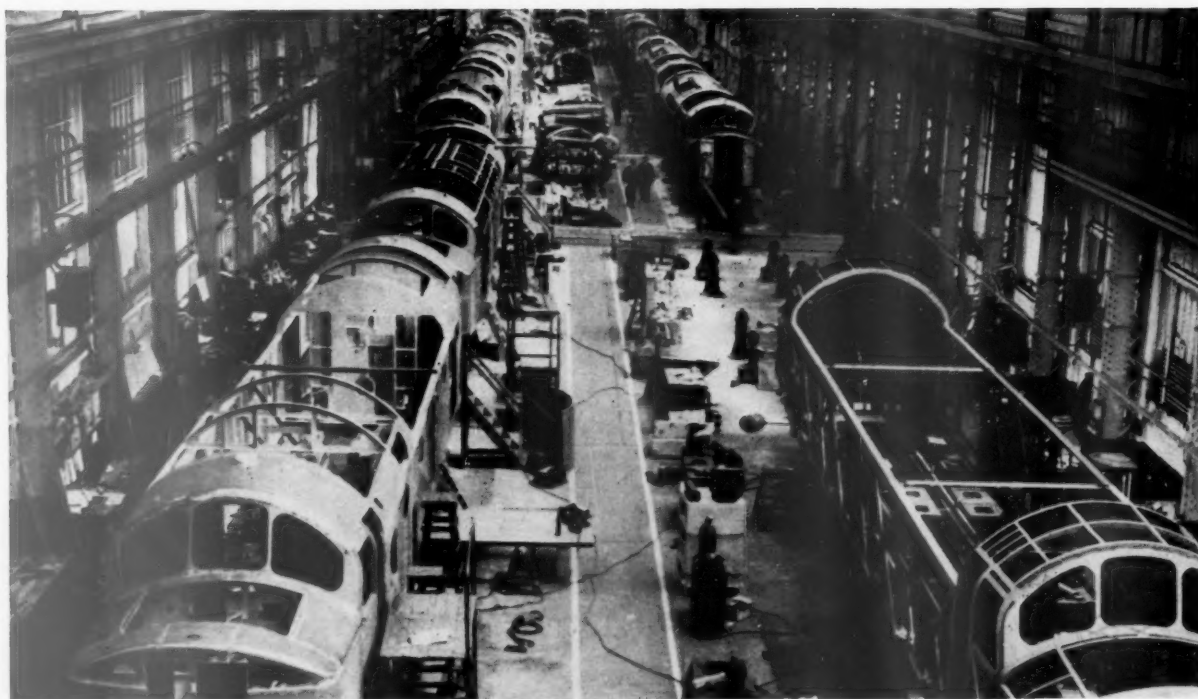
Two operator's stations are placed one at each side of the cab. The direction of movement of the locomotive can be selected only while the power lever is in the idling position as there are mechanical interlocks. The power lever regulates the diesel engine output and is also interlocked with the electrical control. The power controller is a cam-operated unit mechanically linked to the engine governor, with silver-tipped contacts through which the motor contactors are energised. A battery series-parallel switch in the cab enables a series connection to be made for engine starting.

The order was placed by the African Manganese Co. (Mines Management) Ltd. through its consulting engineers, Messrs. Livesey & Henderson.

Sub-contractors include:—

| | |
|-------------------------------------|--|
| Diesel engines ... | Rolls-Royce Limited |
| Generators, motors and control gear | British Thomson-Houston Co. Ltd. (now A.E.I. Traction) |
| Automatic couplings ... | English Steel Corp'n. Ltd. |
| Rubber draft gear ... | George Spencer Moulton & Co. Ltd. |
| Sanders and brakes ... | Westinghouse Brake & Signal Co. Ltd. |
| Battery ... | D.P. Battery Co. Ltd. |
| Charging dynamo ... | Simms Motor Units Limited |
| Silencers ... | Maxim Silencers Limited |
| Sliding cab windows ... | Beckett, Laycock & Watkinson Limited |
| Alarm panels ... | Teddington Industrial Equipment Limited |

Type "4" Diesel Locomotives in Quantity Production for British Railways



English Electric 2,000-h.p. diesel-electric 1-Co-Co-1 locomotives under construction at the works of the Vulcan Foundry Limited, Newton-le-Willows (see our December 18 issue)

RAILWAY NEWS SECTION

PERSONAL

Mr. J. H. Allen is Acting General Manager, Rhodesia Railways, during Mr. J. W. S. Pegrum's absence on leave from December 14 until January 30. Mr. L. A. W. Hawkins will be Acting Deputy General Manager in place of Mr. Allen.

Mr. Charles M. Cock, M.I.Mech.E., M.I.E.E., A.M.I.E.(Australia), M.I.Loco.E., General Manager, Traction Department,

Between June 1941 and February 1942, Mr. Cock was loaned to the Royal Indian Navy, and served at sea with the rank of Lt.-Commander. He was recalled in 1942, to resume his work as Divisional Superintendent, G.I.P.R., because of wartime pressure in the Indian railways. In 1945, Mr. Cock came to England to take up the post of Chief Electrical Engineer, Southern Railway. On the nationalisation of the railways in 1948, he was appointed Chief Electrical Engineer, Railway Executive, and

Establishment Officer, E. A. R. & H., has been appointed Acting Chief Assistant.

Mr. H. J. H. Nethersole, B.Sc., M.I.E.E., M.A.I.E.E., M.(S.A.)I.E.E., A.M.I.Mech.E. F.Inst.Pet., F.Inst.D., F.R.S.A., Managing Director, English Electric Co. of South Africa (Pty.) Ltd., who, as recorded in our November 6 issue, has been appointed General Manager of Traction, English Electric Co., Ltd., was born in Johannesburg in 1903. Educated there and in Grahamstown,



Mr. Charles M. Cock
General Manager, Traction Department,
English Electric Co. Ltd., 1950-59



Mr. H. J. H. Nethersole
Appointed General Manager, Traction Department,
English Electric Co. Ltd.

English Electric Co. Ltd., who, as recorded in our November 6 issue, has retired, has had a distinguished and active railway and engineering career in England and abroad. Born in Melbourne, Australia, he served an apprenticeship with the Victorian Railways workshops and received technical training at Melbourne Technical School. During the 1914-18 war he served in the Royal Navy and saw active service in the Pacific and the North Sea, attaining the rank of Lieutenant, R.N. In 1919 he joined the construction staff of Messrs. Merz & McLellan, in Melbourne, and was concerned with the electrification of Melbourne Suburban Railways and a large power project for the Victorian Electricity Commission. Later he went to India as a supervising engineer on important railway electrification schemes on the G.I.P. and B.B. & C.I. Railways. In 1929 he joined the Operating Division, Transportation Department, G.I.P.R. He was Distribution Engineer and Rolling Stock Engineer, before being appointed Traction Superintendent and, later, Divisional Superintendent for the area including Bombay.

relinquished that position in October, 1950, to join the English Electric Co., Ltd., as General Manager, Traction. In 1951-52 he was Chairman of the Committee which reported on railway electrification in Great Britain. Mr. Cock was President of the Institution of Locomotive Engineers in 1952. In 1950-51 he was Chairman of the Supply Section of the Institution of Electrical Engineers, of which body he has been a Member of Council for eight years and which has awarded him three of its premitiums. Other papers he has read include one on electricity in locomotives to the British Electrical Power Convention. While in India, he was Vice-Chairman of the Bombay Provincial Branch of the Indian Red Cross Association. Mr. Cock now becomes a Deputy Chairman of Brooke Marine Limited.

Mr. R. M. L. Lemon, Chief Assistant to the General Manager, East African Railways & Harbours, has been appointed Acting Chief Operating Superintendent. He takes the place of Mr. G. P. G. Mackay, who is on leave. Mr. J. H. Collier-Wright, Chief

he gained B.Sc. degrees in Pure Science and in Mechanical & Electrical Engineering at the University of Witwatersrand. After post-graduate training with Metropolitan Vickers Limited, he spent six years with Messrs. Merz & McLellan and nine years with Trinidad Leaseholds Limited, where he became Chief Engineer. Joining the English Electric Co. Ltd. in England in 1945, he was transferred the following year to the company's subsidiary in South Africa. He was appointed its Managing Director at the end of 1947. He is also a Director of English Electric Co. (Central Africa) (Pvt.) Ltd., and of Marconi (South Africa) Limited. Mr. Nethersole is a member of the executive councils of the Federated Chamber of Industries of South Africa and of the Transvaal Chamber of Industries, and a Member of the Councils of the Institute of Electrical Engineers and of the Institute of International Affairs of South Africa. He also serves on the Advisory Committee in the Transvaal and Orange Free State of the United Kingdom Institution of Electrical Engineers.



The late Mr. E. S. Gellatly

District Operating Superintendent, Sheffield,
Eastern Region, 1957-59



Mr. W. Sidwell

Appointed Divisional Running & Maintenance
Officer, London, Western Region



Mr. C. P. Millard

Appointed District Goods Manager,
Liverpool, L. M. Region

Mr. E. S. Gellatly, District Operating Superintendent, Sheffield, Eastern Region, British Railways, whose death, on December 16, was briefly recorded in December 25 issue, was 50. Mr. Gellatly was born and educated in Aberdeen. He joined the London & North Eastern Railway in 1925, at Aberdeen, and was appointed a Traffic Apprentice in 1932. From 1935 to 1937, he was engaged on special duties at Grimsby and Immingham Docks and in 1937 was made Dock Agent at Grimsby. In 1941, he was appointed Yardmaster, Peterborough (New England) and, in 1945, transferred to a similar position at Doncaster. He became Assistant District Operating Superintendent, Leeds, in 1948, and in 1950 moved to a similar position at Lincoln. Mr. Gellatly was appointed District Operating Superintendent (Eastern Operating Area), Manchester, in August, 1956, and became District Operating Superintendent, Sheffield, on the setting up of the new traffic organisation in the Eastern Region in December, 1957. The funeral took place on December 21, at Eccleshall Parish Church, followed by cremation at Sheffield City Crematorium.

Mr. Ernest Marples, Minister of Transport, made a four-day visit to West Germany last month to study road traffic problems. He left Southampton, in the *Queen Elizabeth*, for the U.S.A. on December 29.

Mr. W. Nutt, Senior Maintenance Engineer, Queensland Government Railways, has been appointed Project Manager in charge of the Mount Isa Line Reconstruction Programme as a special sub-department.

Mr. W. M. Dravers has been appointed Chairman of the Gateshead & District Omnibus Company, Tynemouth & District Transport Co. Ltd., and Wakefield's Motors Limited, all of which are subsidiary companies of Northern General Transport Co. Ltd. He succeeds Mr. W. T. James, who has resigned from the boards of those companies. Mr. James remains Chairman of the Northern General Transport Co. Ltd. and its other subsidiaries. Mr. T. V. Woods, who has for some time been a member of the headquarters executive of British Electric Traction Co. Ltd., has been appointed to the boards of the Gateshead, Tynemouth and Wakefield's companies to fill the vacancies resulting from Mr. James' resignations.

Mr. W. Sidwell, A.M.I.Mech.E., M.I.Loco.E., District Running & Maintenance Officer, Worcester, Western Region, British Railways, who, as recorded in our December 18 issue, has been appointed Running & Maintenance Officer, Divisional Traffic Manager's Office, London, was educated at Derby Technical College; Northampton Polytechnic, London, and the College of Technology, Manchester. Mr. Sidwell began his railway service with the London Midland & Scottish Railway at the Locomotive Works, Derby, in 1927, where he became a Privileged Apprentice. In 1932 he was transferred to the Motive Power Department as an Improver, and served his initial training at Camden Motive Power Depot, Rugby, Derby and Euston. Mr. Sidwell became Shed Foreman at Widnes, Llandudno Junction, Mirfield and Lees (Oldham). In 1938 he was made Mechanical Inspector at Manchester (Central Division) where, from 1942 to 1944, he served as Maintenance Assistant, before transferring to Gloucester as Assistant District Locomotive Superintendent. Five years later he moved to Wellingborough and the following year to Carlisle, in similar capacities. In 1950, Mr. Sidwell transferred to the Western Region as General Assistant to the Motive Power Superintendent, Swindon. In 1954 he became District Motive Power Superintendent at Worcester. The position was re-designated District Running & Maintenance Officer in 1957, following the re-organisation of the Chief Mechanical & Electrical, Carriage & Wagon and Motive Power Departments.

Mr. Stanley White has been appointed Chief Press Officer, Associated Electrical Industries Limited.

Following the retirement, recorded in our August 28 issue, of Captain G. F. Jeffries, Marine Superintendent, Southern Region, British Railways, his colleagues on the B.T.C. Marine Superintendents Sub-Committee, of which he was Chairman, have presented him with a fishing rod as a mark of their high regard for him. The Sub-Committee comprises not only the Marine Superintendents of the railway regions, but those of the Atlantic Steam Navigation Co. Ltd., Associated Humber Lines Ltd., and the Caledonian Steam Packet Co. Ltd. An illustrated biography of Captain Jeffries was published in our October 30 issue.

Mr. C. P. Millard, Assistant Divisional Traffic Manager, Manchester, London Midland Region, British Railways, who, as recorded in our November 6 issue, has been appointed District Goods Manager, Liverpool, joined the London & North Eastern Railway in 1934 as a probationary clerk. After experience at various stations in the London Area, Mr. Millard was selected, in 1937, as a Traffic Apprentice. He trained at stations, and district and headquarters offices in Scotland, until in January, 1940, he joined Movement Control, Royal Engineers, and later was commissioned. In 1946, after a few months in the District Operating Superintendent's Office, Norwich, Mr. Millard became Assistant to the District Goods & Passenger Manager, Peterborough, and in 1948 was appointed Goods Agent, Chelmsford. He moved to Portsmouth & Southsea as Goods Agent in 1951, and three years later was appointed Assistant District Commercial Manager, Nottingham-Derby District. He was appointed District Goods Manager, Warrington, in 1956, and moved to Manchester as the Assistant Divisional Traffic Manager, in December, 1957.

Mr. A. Noël Smith, Mr. H. F. Smith and Mr. Ernest Leete retired from the board of London Electric Wire Company and Smiths Limited on December 31.

Mr. Eric A. Robinson has been appointed Chairman of Stein Atkinson Vickers Hydraulics Limited, in place of Mr. H. C. J. Russell Smith. Mr. Smith will remain on the board.

Mr. R. F. Summers, Chairman of John Summers & Sons, Ltd., succeeded Mr. Lewis Chapman as President of the British Iron & Steel Federation on January 1. Mr. C. R. Wheeler, Chairman of Guest Keen Iron & Steel Co. Ltd., has been appointed President Elect for 1960.

Mr. Rudolph E. F. de Trafford has been appointed to succeed the late Mr. Thomas Lilley as Chairman of Lewis Berger & Sons Ltd. Mrs. Vera Lilley has been appointed Vice-Chairman. Mr. de Trafford has been a Director of the company since 1955. He is Chairman of Philip Hill Higginson Erlangers Limited, and of Elliott-Automation Limited, and a Director of Royal Exchange Assurance Limited, among other interests.



Mr. S. Goodman

Appointed District Express Agent,
London, C.N.R.

Mr. S. Goodman, Chief Clerk, European General Manager's Department, Canadian National Railways, who, as recorded in our September 18 issue, has been made District Express Agent, London, was born in London, in 1908. He joined the City Office, C.N.R., in 1922. After serving in various departments, he was transferred to the Express office, Heathrow Airport, in 1946, returning to London the following year. He later became Chief Clerk, European General Manager's Office, the appointment he relinquishes.

Mr. T. T. Solaru has been appointed Chairman of Nigerian Airways in succession to Mr. R. W. C. Baker-Beall. He is the first Nigerian to hold the Chairmanship and was formerly a member of the House of Representatives.

Dr. George Macfarlane has been appointed Deputy Director, National Physical Laboratory. He succeeds Dr. Edward Lee, who has become Director of Stations & Industry Divisions, Department of Scientific & Industrial Research.

Mr. A. W. Clark has been elected President of the Glass Manufacturers' Federation in succession to Mr. L. T. Swaney. Mr. I. B. Thorndsen has been elected Chairman of the Council, and Mr. I. M. Bailey, Vice-Chairman.

Mr. T. M. Horn, Manager, Leeds Branch, Atlas Copco (Great Britain) Limited, has retired. He is succeeded by Mr. A. W. Tombleson, from the company's Manchester branch. The existing Leeds area has been divided and a new branch office has been established in Newcastle. The Branch Manager in Newcastle is Mr. W. Hossent.

Sir Henry Spurrier, Chairman & Managing Director, Leyland Motors Limited, and Mr. Donald G. Stokes, the company's General Sales & Service Manager, have joined the board of Empresa Nacional de Autocamiones S.A. (E.N.A.S.A.), the Spanish automobile company. Mr. Stanley Maryland, Works Director & Managing Director, Albion Motors Limited, in charge of Leyland Group production, has agreed to act as Technical Consultant for manufacturing and production processes at the Spanish factories. Brief reference to the two companies is made elsewhere in this issue.

We regret that in the biography, published last month, of Mr. M. Harbottle, District Engineer, Derby South, London Midland Region, British Railways, he was stated incorrectly to hold the D.S.O. and O.B.E.

Mr. Peter Murdoch, Assistant Divisional Shipping Manager, Newhaven, Southern Region, British Railways, has been appointed Docks Manager, Middlesbrough & Hartlepool Docks, British Transport Docks.

Mr. Charles William Reester, General Manager, Mortimer Engineering Company, has been appointed to the board of S. Guiterman & Co. Ltd., Proprietors of Mortimer Engineering Company.

Mr. A. I. Baker, Chairman, Baker Perkins Limited, has been elected President of the British Engineers' Association. The retiring President, Sir Edward Thompson, Chairman & Joint Managing Director of John Thompson Limited, has been elected Honorary Treasurer.

THE INSTITUTION OF LOCOMOTIVE ENGINEERS

The following names have been entered on, or transferred in, the register of members of the Institution of Locomotive Engineers:

Members:
Mr. L. R. Cotton, Divisional Engineer, "A" Division (Principal Executive Assistant), Bollo Lane, Acton, London Transport Executive.

Mr. H. W. Fulton, Executive Director, North British Locomotive Co. Ltd.

Associate Members:
Mr. A. C. Bhattacharya, Assistant Production Engineer, Carriage & Wagon Workshops, Kanchrapara, Eastern Railway, India.

Mr. A. S. Dhir, Mechanical Engineer, Calcutta, Eastern Railway, India.

Mr. A. A. George, Assistant Engineer, Administrative Offices, Victorian Government Railways.

Mr. G. H. Griffith, Distribution Engineer-Deputy Electric Traction Engineer, Manchester, Eastern Region, British Railways.

Mr. K. L. Khorana, Works Manager (C. & W.), N.E. Railway, India.

Mr. G. J. McDougall, Assistant to Works Manager, Eastleigh, Southern Region, British Railways.

Mr. K. Pitts, Locomotive Shedmaster, Grimsthorpe, N.E. Region, British Railways.

Mr. J. Russell, Assistant Traction Engineer, Midland Junction, Western Australian Government Railways.

Graduates:
Mr. A. S. Bentley, Draughtsman, Beyer Peacock & Co. Ltd.

Mr. J. D. C. Brown, Technical Assistant, C.M. & E.E.'s Department, Doncaster, Eastern Region, British Railways.

Mr. G. C. Crabtree, Traction Projects Engineer, English Electric Co. Ltd.

Mr. G. R. Hart, Technical Assistant, C.M. & E.E.'s Department, Exchange Chambers, Liverpool, British Railways.

Mr. D. S. Jit, Assistant Mechanical Engineer (Probationer), Kharagpur, South Eastern Railway, India.

Mr. N. D. Kalro, Probationary Assistant Mechanical Engineer, Railway Board, India.

Mr. B. Rangarajan, Assistant Mechanical Engineer (Probationer), Kharagpur, South Eastern Railway, India.

Mr. V. R. Rao, Assistant Mechanical Engineer (Probationer), Kharagpur, South Eastern Railway, India.

Mr. P. R. Sarkar, Assistant Mechanical Engineer (Probationer), Kharagpur, South Eastern Railway, India.

Student:

Mr. J. W. G. Booth, Graduate Engineer, C.M. & E.E.'s Department, Doncaster, North Eastern Region, British Railways.



Mr. J. W. H. Townshend

Appointed Executive Assistant to European
General Manager, C.P.R.

Mr. J. W. H. Townshend, General Passenger Agent, London, Canadian Pacific Railway, who, as recorded in our November 13 issue, has been appointed Executive Assistant to the European General Manager, joined the C.P.R. in 1923 in the Registrar's Office, London. He was transferred to the Passenger Department a year later. He specialised in the steamship traffic side of the business and for many years has represented the company at meetings of the Atlantic Lines' Conference. In 1948 he was appointed Conference Secretary for the company. Four years later he became Assistant General Passenger Agent, London. He has been General Passenger Agent, London, since 1955, and has been concerned mainly with the company's steamship service on the Atlantic. In his latest appointment, which is a newly created one, his responsibilities will be extended over all phases of the company's business in Europe. Throughout the 1939-45 war Mr. Townshend served in the Royal Engineers (Movement Control).

We regret to record the death, on December 23, of Mr. W. T. Freestone, a former Director of Peter Brotherhood Limited.

The President of the Board of Trade has asked the following to act as members of the new Export Publicity Council of which the Minister of State, Mr. F. J. Erroll, is to be Chairman: Mr. R. P. S. Bache (National Union of Manufacturers), Mr. R. A. Bevan (Advisory Council on Middle East Trade), Mr. S. Black (Institute of Public Relations), Mr. H. M. Braid (Incorporated Society of British Advertisers), Mr. W. P. N. Edwards, Sir Patrick Hamilton, Mr. N. Jepson (Association of British Chambers of Commerce), Mr. M. Lubbock (British Latin America Chamber of Commerce), Miss E. Macdonald, Mr. H. Oughton (Institute of Practitioners in Advertising), Mr. Brian Rootes (Dollar Exports Council), Mr. A. Wolcough (Advertising Association), Sir Walter Worboys (Federation of British Industries), Mr. Lewis Wright (Trades Union Congress).

In addition, there will be representatives of the Board of Trade, Foreign Office, Commonwealth Relations Office, Colonial Office, Treasury, Office of the Chancellor of the Duchy of Lancaster, and Central Office of Information. The Secretary of the Council is Mr. J. D. Parker, Export Publicity & Fairs Branch, Board of Trade.

NEW EQUIPMENT AND PROCESSES



Forging Developments

THREE developments of possible interest to forging and drop forging engineers are a footlever guard for pneumatic power hammers; a nylon lifting belt for friction drop hammers, and friction band linings and hold-up band linings for drop hammers.

The first illustration shows the footlever guard, which is strongly recommended for all the smaller pneumatic power hammers of both the "clear space" and "with slides" types.

The second illustration shows the nylon lifting belts. Some users have reported that this nylon belting has lasted for more than five years.

The third illustration shows the friction band linings and hold-up band linings, which have passed stringent tests under working conditions.

Further details can be obtained from the manufacturer, B. & S. Massey Limited, Openshaw, Manchester, 11.

Magnetic Brakes

THE Crofts Type "B" electrically-released magnetic brake consists of a stationary housing which accommodates a magnetic coil, a series of alternate steel and friction discs, and a hub for the shaft to be arrested by the brake.

The housing is arranged to be bolted to a stationary part and to fit on a spigot. Internal teeth in the friction discs mate with teeth cut in the hub while peripheral teeth in the steel discs engage with the stationary housing.

In operation, the brake remains normally engaged as a result of pressure on the discs exerted by a number of compression springs in the coil housing acting through a pressure plate. Under this pressure the discs cannot rotate and the hub is held immobile. When the current is switched on, the magnetic flux attracts the pressure plate against the spring loading, thus relieving the discs so that they and the hub are free to rotate.

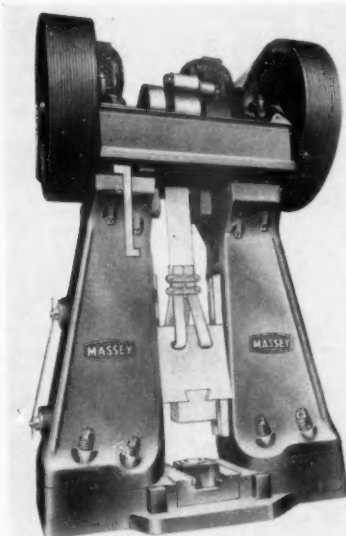
The brake is set to exert maximum torque before despatch. If less than the maximum torque is required, the screwed end cap can be slackened until required braking time is obtained.

Standard brakes require 24V. d.c. for release and power supplied should be ± 10 per cent of specified voltage. Brakes can

also be supplied to operate on other voltages. The terminal block can be totally enclosed for conduit type entry. Conversion units for use with a.c. power can be supplied separately or attached to the brake.

For applications in which it is required to release the brake slightly in the event of current failure, a special release lever can be supplied. These levers are for emergency use only. Another special attachment is a handwheel to disengage the brake. The brake will arrest rotation in either direction and can be depended on to exert the listed torque under normal conditions.

Further details can be obtained from the manufacturer, Crofts (Engineers) Limited, Bradford 3.



Cast Iron Plates

THE Stelcon cast iron plate is claimed to develop to the full all the qualities of cast iron and to eradicate many of its disadvantages.

The new plates provide a flooring twice as hard as mild steel. They are dustless, non-slip, easily cleaned, and quiet under steel-wheeled traffic. Each plate is 12 in. square, with edges and diamond pattern sharply defined. Vertical sides are slightly inset to give snug and flat fit for a level and strong floor surface.

The underside of the plate is cross-flanged for strength and to key the plates together and to the bedding. Air escapes ensure

good adhesion in laying. The underface has a rough matt finish.

Further details can be obtained from the manufacturer, Stelcon (Industrial Floors) Limited, Cliffords Inn, London, E.C.4.

Glassfibre Sheetting

VERPLEX is a glassfibre sheetting which is available translucent and opaque in all colours, either plain or patterned, lightly reeded, or flat.

The laminate is shatter-proof, and stronger weight for weight, than any other material. Its weight is 4-8 oz. per sq. ft. according to quality. Translucent sheetting will transmit up to 80 per cent natural light. It possesses low heat conductivity and is unaffected by temperature variations. It can be drilled and cut with conventional hand tools (a hacksaw is recommended) or with power tools (4 in. carborundum wheel is best for cutting). Special colours for matching purposes can be made.

The sheetting may be lighted from behind, fixed by conventional methods, and stuck to any flat surface with Evostick. Artificial light source should be kept as far away from the sheetting as possible, and should not be too strong. When cased in lighting is used, an air vent should be provided. No maintenance is required.

Further details can be obtained from E. & H. Universal Laminated Plastics Limited, 184, Royal College Street, London, N.W.1.

Automatic Door-opening

THERE is a tendency to consider an automatic door-opening device as a luxury. Nevertheless, anyone who has tried to push a trolley through a swing door knows what a frustrating task this can be—especially when automatic door closers are fitted. As general acceptance of the equipment might so reduce costs that automatic door-opening devices would be an economical proposition for even domestic use, the method of operation may prove of interest. It is as follows:—

A light-beam installed at a distance from the doorway is broken by the approach of a person or vehicle; thus an electrically-operated valve is energised, hydraulic cylinders are actuated and the door opens. After an adjustable delay, the door closes automatically by reversal of the cylinder movement. If the beam is again broken by the approach of another person or vehicle, the door is kept open for a further pre-determined period. It will not close during the passage of a person or vehicle. The door can be operated automatically from either or both sides. The device does not interfere with normal manual opening.

Further details can be obtained from Electro Hydraulics Limited, Liverpool Road, Warrington, Lancs.

Portable Arc Welding Transformer

THE Fararc 240, the latest version of the Fararc toroidal welding transformer, incorporates a new system of insulation that allows the set to be used for more continuous use on heavier gauge rod without overheating. This is achieved by a new impregnation and baking process whereby the two primary and the secondary windings are independently

impregnated and baked. The unit weighs 95 lb., and is contained in a cubic steel and aluminium stove-grey hammer-finish case with a 14-in. side. Open-circuit voltage is 50V. and current range is from 60 to 300 A. with a continuous rating of 200 A. Standard windings are for 200/250 V. and 400/440 V., but special windings for 110 V. and 500/550 V. Other voltages are available. The efficiency of the transformer gives a power factor of 0.82; the magnetising current is under 1 A. No correction condensers are needed, and the set is approved by various electricity authorities for connection to rural mains.

Windings are doubleglass - insulated, wrapped where necessary with glass woven cloth, the whole being triple-impregnated with pure silicone varnish and baked. This insulation will withstand temperatures up to 180 deg. C. without damage. Cooling is by a fan giving 600 cu. ft. per min. over windings but, as an additional precaution, a thermostatic switch cuts off the welding current but leaves the fan working in the event of over heating. This action allows the set to cool down rapidly.

Further details can be obtained from Portable Welders Limited, Castle Mills, Buckingham.

Slow-speed High Torque Hydraulic Motor

THE Staffa Mark V is a slow-speed hydraulic motor with seven cylinders, each having a bore diameter of 4 in. and a stroke of 3 in.

While the general design is similar to that of five-cylinder motors of the same type, the crankcase and cylinders of the Staffa model form a monobloc casting, with the cylinders arranged radially and each fitted with a detachable head. At normal working pressure of 2,000 lb. per sq. in., maximum output torque is claimed to be 6,650 lb. ft. with an overall efficiency rating of 94.2 per cent.

The speed range is 0-75 r.p.m. and the driving shaft may be safely loaded to six tons overhang weight. For starting and peakloading the pressure can be increased to 3,000 lb. per sq. in., giving an increased output torque of 10,000 lb. ft.

Like the five-cylinder type, the speed of the motor is infinitely variable within the stated range, and in either direction of rotation.

Further details can be obtained from the manufacturer, Chamberlain Industries Limited, Staffa Works, Argall Avenue, London, E.10.

Tandem Scrapers

TANDEM scrapers are available behind all three sizes of LeTourneau-Westinghouse two-wheel prime movers, as well as with the recently introduced four-wheel Speedpull. Total capacities with the tandems range from 18 cu. yd. in the "D" size to 56 cu. yd. in the model "B."

The tandem system is claimed to be extremely flexible—coupling or uncoupling the second scraper is stated to occupy less than 30 min. One hitch pin forms the mechanical connection, while quick connect plug-ins provide the hook-up for electric cables and air hoses.

The capacity-doubling process does not call for a more powerful pusher. Because the scrapers are loaded singly, loading resistance is about the same as it would be if there were only one scraper behind the prime mover. Loading time is actually faster than it would be if each scraper had its own power unit, because the time taken

for the pusher to position for the second load has been eliminated.

Electric controls for the rear scraper, like those on the front, transmit the power for tailgate, apron, and bowl lift through electric cable eliminating the long runs of wire rope. Manoeuvrability is facilitated by the absence of front axle and wheels on the second scraper, which rides "piggyback" on the rear of the front scraper. This permits the second scraper to turn a full right angle in relation to the front scraper.

As a result, the tandem very closely approaches, and in many instances surpasses, the manoeuvrability of conventional single-scraper self-propelled units of comparable carrying capacity. As illustration, it is pointed out that a model "D" Tournapull with tandem scrapers totalling 18-yd. capacity can make a 180-deg. turn in less than the 32 ft. 7 in. space required by the model "C" with single 18-yd. scraper.

Almost all Tournapull electric control rigs built since 1947 can be tandemised in the field at modest cost. Further details

can be obtained from the LeTourneau-Westinghouse Company, Peoria, Illinois, U.S.A.

Laminated Plastics

WARERITE 1960 is a new range of laminated plastics comprising 16 patterns designed to widen customer's choice of scale and provide designs of a less formal, more abstract, type than those currently available.

Although the use of laminated plastics is widespread, existing designs have tended to make their application restricted to working surfaces where durability and hygienic properties are the main requirements. The new range is suitable for domestic as well as for hotel decoration. It includes conventionalised treatment of human figures sealed in a kaleidoscope of colour; large and small-scale floral designs; leaf and plant forms; an excellent imitation of black marble, and a rich impression of terrazzo. Gold is incorporated in several of the designs.

All but two are available in sheets 9 ft. x 4 ft. and 8 ft. x 4 ft. List prices vary from 4s. to 5s. per sq. ft.

Further details can be obtained from the manufacturer, Bakelite Limited, 12-18 Grosvenor Gardens, London, S.W.1.

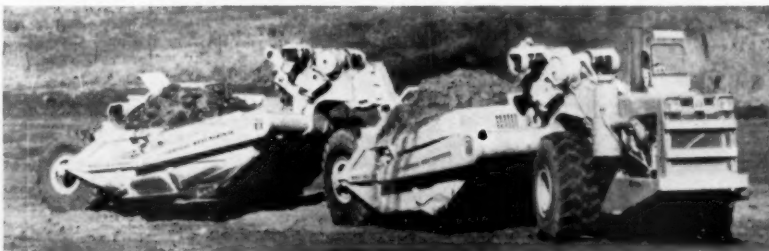
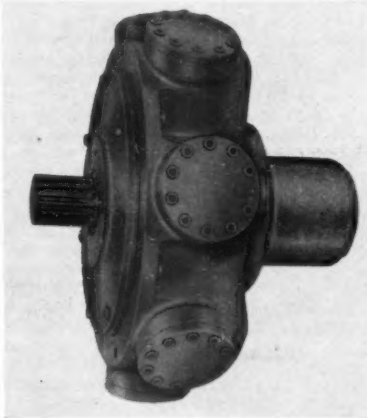
Flexible Swing Door

THE "Manby" is an entirely new flexible swing door with a timber frame generally in mahogany or oak, suited to all internal applications where pedestrian or light-hand propelled trolley traffic is experienced.

The door comprises a cantilevered timber frame of clear design finished with a moulding. Main- and window-frame in timbers other than mahogany and oak can be supplied at extra cost. The flexible resin-laminate rubber panels provide flexibility and strength and sufficient rigidity to prevent distortion. The size and positioning of the perspex windows has been subjected to special study to ensure clear vision; nevertheless, the large window area does not detract from the degree of privacy which the use of opaque rubber panels provides. The doors are available in black and white and in a wide range of colours.

The use of double-action helical hinges provides for 180 deg. opening and, coupled with light weight, ensures finger-tip control within the capacity even of the wheel-chair patient. Hinge wear is reduced to a minimum. No kicking plates or other expensive door "furniture" are necessary and considerable economies are claimed in the elimination of annual maintenance and polishing costs. Installation is carried out as for any swing door fitted with similar hinge mechanism. The doors are available for openings up to 7 ft. 6 in. high by 7 ft. 6 in. wide.

Further details and descriptive literature are available from Mancuna Engineering Limited, Denton, Manchester.



Main-Line Diesel Locomotives for N.E. Region

Further progress of modernisation in the North Eastern Region of British Railways is evident from the delivery of 13 main-line Type "4" English Electric locomotives which will enable the first phase to take place of the planned North Eastern Region change-over from steam to diesel traction on main-line trains.

By the spring of this year Type "4" locomotives will be regularly hauling many express passenger and freight trains on the Newcastle—Edinburgh and Newcastle—York—Leeds routes. In the meantime, to give drivers and maintenance staff experience of the new locomotives before they are put into regular service they are being used for working selected express passenger, freight, and parcels trains over the routes they will work ultimately, and also on the route from Newcastle to Carlisle.

Intensive Use

The 13 locomotives are numbered D.237—D.249 inclusive and are based for maintenance purposes at Gateshead Motive Power Depot. Similar units are giving good service in the London Midland and Eastern Regions. A typical traffic schedule on the Eastern Region requires that one Type "4" locomotive should haul three Pullman trains, including "The Master Cutler" in one day between Kings Cross and Sheffield Victoria, as well as taking a heavy goods train from Sheffield to Newcastle.

A description of the locomotive appeared in our April 25, 1958, issue and similar units are shown on page 20 of this issue in quantity production at the works of Vulcan Foundry Limited, a member of the English Electric Group.

Small Rotary Engine Developments

The N.S.U.-Wankel rotary-piston engine, operating on the four-stroke cycle but without any of the large inertia forces involved in reciprocating motion to limit the permissible r.p.m., has reached an advanced stage of development in Germany after two-and-a-half years of experimental work. The maker states that intensive tests have proved the capability of the engine eventually to occupy a position ranking in importance somewhere between the reciprocating engine and the gas turbine.

There are only two main moving components, a rotor and an output shaft with gearing to ensure their correct relative speeds. The rotor is of basically triangular section, mounted on eccentric bearings and rotated axially at one-third of the main-shaft speed by an annular gear so that the apexes follow the curvature of a cylinder bored by special tooling with an epitrochoidal sectional contour (not unlike an open figure eight). This motion is fully balanced.

Segmental Spaces of Variable Volume

During rotation, the three separate segmental spaces between the almost-flat surfaces of the rotor and the curved bore increase and diminish in volume enabling them to be used successively for induction, compression, firing, and exhaust strokes. The cycle phases are separated from each other so allowing the high compression and expansion ratios important for economical running. It is claimed that an early spark-ignition prototype of 125 cu. in. capacity gave a short-term rating of 29 b.h.p. at 17,000 r.p.m. and fuel consumption was 0.514 lb. per b.h.p.-hr. (fuel used not stated). For comparison, average diesel engines consume about 0.4/0.45 lb. per b.h.p.-hr. Brake

mean effective pressures exceeded 135 lb. per sq. in. Specific weight is exceptionally low, about 0.7 lb. per b.h.p., but this would be increased after allowing for the reduction gear necessary to suit conventional slow- and medium-speed drives.

No details have been released by N.S.U. concerning the materials used for the seals between moving surfaces, which are of critical importance in rotary engine design, nor of

any arrangement for positive lubrication, but it is known that the inventor, Felix Wankel, has specialised knowledge of flat rotating discs used as sealing elements. Water cooling is used on development versions. During the past 12 months, the Curtiss-Wright Corporation of America has collaborated in developing high-capacity versions of the engine, including one of 100 b.h.p. weighing 100 lb.

Antofagasta (Chili) & Bolivia Railway Co. Ltd.

Mr. H. C. Drayton on the position

The seventy-first annual general meeting of the Antofagasta (Chili) & Bolivia Railway Co. Ltd. was held on December 22, in London, Mr. H. C. Drayton, Chairman, presiding.

The following is an extract from his circulated statement for the year 1958:—

In my last annual statement and again at the annual general meeting, I drew your attention to the unsatisfactory conditions under which the company was operating in Bolivia. The board was obliged to inform the Bolivian Government that the company would no longer be able to finance the operation of the railways. The Bolivian Government thereupon appointed a commission to study the problem.

The net result of the year's operation of the Antofagasta Company's own railways, moles and waterworks, after transferring £16,227 to the Re-equipment Fund (Chile), was a loss of £16,177 compared with a profit of £285,273 for 1957. The credit balance on Net Revenue Account at December 31, 1958, is reduced from £732,830 to £431,250, which it is proposed to carry forward.

Chairman's Additional Remarks

Addressing the meeting, the Chairman included in his observations:—

Since issuing the company's report and accounts, we have just received a copy of the voluminous report running in to 400 pages (plus annexed schedules not yet received) submitted to the Bolivian Government by the special commission appointed in January last to study the railway question. The commission's report has not been issued to the public.

We have not yet had time fully to study this lengthy document, which examines the history of our railways from their inception to the present day. I will, however, comment, briefly on a few significant points. As you know, since 1957 we had been constantly and urgently requesting the Bolivian Government to authorise measures to enable the Company to operate, in view of the large and increasing operating losses. Another matter on which we had made representations to the Government was the direct interference by the powerful railway labour unions which had reached such a pitch that management was being destroyed.

The measures which we requested included, amongst others, an increase in tariffs, authority to dismiss men in excess of our requirements, a reduction in the very high price of national fuel oil and the transfer of the medical service to the Social Fund. It was because the Bolivian Government failed to sanction these measures that the Board, in January of this year were reluctantly compelled to inform the Government that it could no longer continue to operate the railways. You will have seen from our annual report that our actual loss in 1958 was some £500,000; and the rate of loss to February 18, 1959, was at a greater rate.

Now it is significant that the commission after a careful examination stresses that,

whatever may be the future of the railways, that is, whether they are operated by the State or by private enterprise, the urgent adoption of these very measures which we had requested are indispensable for the economic operation of the railways.

I think you will agree that that is a vindication.

When we ceased to operate in Bolivia there were certain freight accounts owing to us for the transport of minerals. Some of these debts have been collected and some have not. We have in the meantime continued to carry Bolivian minerals over our Chilean Section and one of our preoccupations has been to collect the freights.

The report and accounts were adopted.

London Midland Region Timetable Changes

From January 4, extensive alterations are being made in the services of the Western Division of British Railways, London Midland Region. Because of the closing to passenger traffic of Blisworth Station, certain main-line trains which have stopped there are being diverted via the Northampton loop and are calling at Northampton, so permitting withdrawal of the railcar connections between Blisworth and Northampton.

These expresses include the 8.40 a.m. from Carlisle to Euston, which will call at Northampton from 3.1 to 3.4 p.m. and reach Euston 10 min. later at 4.37 p.m. On Saturdays the 7.45 a.m. from Crewe to Euston will stop at Northampton from 10.7 to 10.10 a.m. and be due in London 13 min. later, at 11.36 a.m. The 12.50 p.m. from Bangor to Euston is to call additionally at Bletchley and reach Euston 7 min. later, at 6.32 p.m.

In the down direction the 12.20 a.m. from Euston to Liverpool will call at Crewe, and reach Liverpool Lime Street at 4.50 a.m., 6 min. later.

Additional Diesel Services

The new diesel multiple-unit service between New Brighton, Chester Northgate, and Wrexham is on a considerably more ample scale than the former steam service. There are 22 daily departures from Wrexham and 28 on Saturdays as compared with 15 and 18 respectively; and 29 and 30 from New Brighton (formerly from Seacombe) compared with 11 daily in the previous timetable. Upton, Heswall Hills, and Neston North thus get two trains each hour throughout the day, connecting at Bidston with the Wirral electric trains to and from Birkenhead and Liverpool Central. Many diesels run through to and from Wrexham, while certain of the Wrexham trains run to and from Chester Northgate; the through trains also have a shuttle service connection between Shotton High Level (where connection also is made with the North Wales main

line) and Chester. Other diesel services to which considerable additions are being made from January 4 are those in the Preston area; a service is being provided at even hourly intervals between Blackpool Central, Preston, Blackburn, Accrington and Colne.

Charles Roberts & Co. Ltd.

Mr. Duncan Bailey, Chairman of Charles Roberts & Co. Ltd., who presided at the recent annual general meeting at Horbury Junction, Wakefield, pointed out in his address that he had stated last year that although the Minister of Transport had stated in Parliament that it was desired to see orders, placed by British Railways, shared between the railways' own shops and the established builders, thus helping the latter in their endeavours to obtain export work, that policy was not being pursued.

Hurst, Nelson & Co. Ltd., acquired on April 1, 1958, had contributed substantially to the Group trading profit for the year ended March 31, 1959, completing old orders. That was entirely due to the immediate steps which the Group had taken. But, with no prospect of any orders being forthcoming in the foreseeable future, advantage had been taken of a favourable opportunity to dispose of the works at Motherwell.

As last year, the board declared in July a second interim dividend for the year ended March 31, 1959. No further dividend was proposed, and the total distributions to ordinary stockholders accordingly amounted to 9d., less tax, per unit of 5s., the same rate as last year, but payable on the capital as increased by £398,150 ordinary stock issued in part satisfaction of the purchase price of Hurst, Nelson & Co. Ltd.

At present they had work to keep the works going for at least another 12 months, and no doubt they would find further orders to keep them occupied, despite prospective reduction in the volume of new orders to be placed by the B.T.C. with the wagon building industry. Competition for export orders became keener every day, and the constant and often senseless strikes in this country were driving trade away, making it impossible to earn a reasonable profit on any orders secured from abroad. It would be difficult to maintain from railway wagon building activities that reasonable standard of profit to which they should be entitled in an efficient establishment such as they had there; but with intensified activity in obtaining other work and the further development of the subsidiaries he hoped that they could continue to pay reasonable dividends.

TRAINS DELAYED BY THEFT OF SIGNAL WIRE.—Thieves stole 1,000 yd. of copper signalling wire and put all signals at danger for 2½ miles on the railway between West Ruislip and Northolt Park Stations, British Railways, Western Region, during the evening of December 21. Trains next day worked on a time interval system and were delayed 10-20 min. between Marylebone and High Wycombe. The fault in the signalling system was discovered at 8.30 p.m. on December 21. It is stated that this was not the first time that sabotage of this kind had occurred.

STEEL CO. OF WALES LIMITED EXPANSION PLAN DECISION DEFERRED.—No decision has been reached and no statement is likely for possibly a month regarding the £30,000,000 expansion plan which the Steel Co. of Wales Ltd. has submitted for approval to the Iron & Steel Board. The plan aims to increase production of sheet and tin-plate by 400,000 tons by the end of 1961.

Parliamentary Notes

House of Lords Debate on Railways

Lord Lucas of Chilworth in the House of Lords on December 17, drew attention to British Railways, their operation, and their place in the transport system, and moved for papers.

Never in the history of British Railways, he said, had they been in such disrepute with the travelling public as they were today; never had the morale of the railway worker been so low. And during the period over which these two factors had gained momentum the B.T.C. had lost £300 million.

Coal, supposed to be one of the great traffics of British Railways could now be moved by road from the pits to the South Midlands at 4s. to 7s. 6d. a ton cheaper. Publishers could get their periodicals to the streets of New York quicker than to towns 50 miles from London.

During the past four years 300 miles of line had been closed. In the re-appraisal of the modernisation plan, it had been stated that another six times as many miles were to be closed. He was not against the closing of uneconomic lines, but what was the yardstick of an uneconomic line? He read that many more stations were to be closed down. Then he read in the newspapers that many of them were to be reprieved because revenue would be lost if they were closed. Twelve months ago, almost to the day, the Government had said to the B.T.C.: "Unless you economise to the extent of an agreed figure"—he believed it was £20 million—"we will not give you any further financial assistance." That was the price that had to be paid for the financial assistance given to the Commission to finance its deficit. He believed that, in the event only about £9 million could be saved. His investigations showed that economy was effected on the maintenance of the rolling stock and of the track, and that was why today there was a disproportionate number of locomotives breaking down and of delays caused by track failures.

Although the labour was decreasing, Lord Lucas went on, no overtime was allowed on the maintenance of rolling stock or track because there had to be economy at all costs.

Fine Quality of Older Railwaymen

When the B.T.C. took over the railways it inherited some of the finest men in any industry in this country. The war record of the railway worker needed no praise from him. But his morale had been crushed. There was no more soul-destroying experience than to be told every day that one's conditions and wages could not be improved because the concern was always losing money. What had happened in 1959, the most prosperous year this country had ever known—except for the railway worker? The men had left the railways; and the only men they had today were those stalwarts within shooting distance of their pension, and those with family ties.

The B.T.C. had stated in a White Paper in 1956 that a pre-requisite for success of its undertaking was a rising standard of living over the country. The overall increase had to be 3 per cent, yet it had never had the ability to make use of the position or the courage to face the challenge. The other day the Chairman of the Commission, Sir Brian Robertson, had stated before the National Production Advisory Council for Industry, that it was unfair of industries to bribe the workers with better pay. Had any industrialist ever heard a more amazing statement?

Competition for Manpower

The concerns of British industry were doing one of the finest jobs British industry had ever done, but, to use the expression of the Chairman of the Commission, were bribing railwaymen away by paying far

higher rates. Yet industry was producing goods at prices which would compete in the markets of the world, because it had learnt the secret of productive management.

Low Railway Pay

The Guillebaud Committee, Lord Lucas continued, would state, by and large, that the rates of pay on British Railways were about 12½ per cent—they might say 15 per cent—below the comparable level in other industries. Would British Railways go on repeating that nothing more could be paid? Could they expect the railwayman to stand by when all his fellow workers were bringing home pay packets of £20 a week.

After describing the financial position and obligations of the B.T.C., Lord Lucas said that the Transport Act of 1947 enjoined that the Commission must make its expenditure meet its revenue, taking one year with another. It was implicit in the Act that the Commission should be independent of Parliament and of the Government, save only that, to satisfy the principle of public accountability, it must produce a report and account to Parliament every year. Then Parliament made the first of its fatal errors. It hedged the Commission around with restrictions that made it impossible for the Commission ever to operate as a commercial concern. Lord Lucas outlined delays in increasing freight rates caused by the need to obtain the authority of the Transport Tribunal and to the refusal of the Government in 1952 to allow a passenger fares increase and in 1956 to allow a freight rate increase.

B.T.C. Chairman "Tool of Government"

A different page in transport history would have been written if the Chairman of the B.T.C. had told the Government that he could not make his income meet his expenditure if they were going to impose their policies upon him. Because of the failure to do so the Chairman became the tool of the Government. Once the chairman of the nationalised industry became the tool of any Government he might just as well get out.

He did not want any Royal Commission or committees. The deficit of the B.T.C., which probably now stood at £370 million, should be wiped off and the Commission put in funds for two years. It should be freed of transport tribunals and allowed to go out and compete for business. If the same management was kept at the top, in 10 years time another £300 million would have to be found. The man at the top of the Commission needed the sheer ability to direct and manage industrial and commercial operations, however vast and diverse. But there was not one permanent full-time Member of the B.T.C. today who measured up within a hundred miles of that.

First Class General Managers Needed

Experience had shown the present structure of the Commission and Area Boards to be top-heavy. Let there be Areas, but one first-class general manager in charge of an area was worth 20 part-time directors.

The modernisation plan must be speeded-up. Only 2½ per cent of the total main-line locomotives, passenger and freight, were diesel. After four years of argument, continuous braking on freight wagons had been fitted, partly or fully, only to the extent of 31 per cent. The automatic coupling had not yet made its appearance. In 1958, he had been told by Lord Selkirk, answering for the Government, that it was being experimented with. Today it was still being experimented with.

The B.T.C., Lord Lucas concluded "if properly integrated," could be one of the most prosperous concerns in Britain. Integration had not started within the nationalised transport undertaking. At present British Railways owned as many road vehicles as

British Road Services. When loads which could well go by rail or sea were being moved by road, integration had not started. They needed an inquiry into the matter by a first-class industrialist. Lord Mills would command the confidence of everybody. He should start at once.

Lord Mills, Paymaster General, outlined the history of the railways since the end of the 1914-18 war. He pointed out that after the war of 1939-45, the railways and the roads came low in priority for public investment. British Railways entered the 1950's faced by a big renewals programme and road transport was expanding.

Railway Subsidy

The financial consequences of operating under a system of private enterprise and a system of public ownership could be essentially different. With private enterprise operating adversely there came a time when the capital had to be reduced, resulting in a reconstruction or a sale. But in the case of a publicly-owned concern the Treasury, with the consent of Parliament, had hitherto met the capital requirements and the deficits. But any writing down of capital to excuse its repayment would be a subsidy.

Lord Boothby asked what was wrong with a subsidy during the necessary period of reconstruction.

Lord Mills: "If you qualify it to the period of reconstruction I cannot see what is wrong with it, but whether one of our public undertakings should be financed by subsidy is a matter for careful thought, and for Parliament to consider."

The B.T.C., he added, had been pursuing decentralisation and a large body of opinion supported it in building up authority in the Regions. There had been a growing movement to include in the board membership a greater proportion of whole-time members who knew the industry. He still believed, however, while agreeing with this policy, that part-time members with the right experience helped in formulating the right policies and preventing narrow-mindedness and rigidity. He could not predict the findings of the Guillebaud Committee.

The Commission realised that emergency measures here, there, and everywhere would not do. It had had the courage to put forward a comprehensive plan for rationalisation and modernisation. In the meantime he thought they should give the Commission their confidence.

Viscount Simon said that for the special reasons which applied to coastal shipping there was a case for examining closely whether these safeguards should be withdrawn. Whatever the tasks of British Railways, they did not include elimination of coastal shipping.

A.W.S. Long Overdue

Lord Winster said that the B.T.C. might do very much better with A.W.S. The device was to be installed on a number of lines by 1962—57 years and several hundred lives after the idea had been thought of. A.W.S. had been first applied by the G.W.R. The then General Manager of that railway had prophesied that, through professional jealousy, no other line would adopt the invention; he had been only too right in foreseeing what would happen.

Modernisation Plan Obsolete?

Lord Forbes said he had two main fears: (1) that present modernisation plan would be hopelessly out of date almost before it was completed unless it was radically altered now; and (2) that the B.T.C. policy was detrimental to the Highlands and N.E. of Scotland and other outlying rural areas. What was planned now would bring the railways only up to 1950, and not 1970 or 1980, standards. They must take into account

the development of other forms of transport. The membership of the Commission should be reinforced by men with experience of industry and commerce, men with "selling brains," and by some of the younger generation with imagination and driving force—something which the present Commission seemed to lack. As to the Scottish Highlands, Lord Forbes stressed, special low freights should be introduced to encourage industry to establish in those remote rural areas. Scotland was suffering also from poor passenger services.

Lord Glyn said one of the most exasperating things he had experienced since he had to do with railways and Parliament was that he believed Parliament contributed more than anything else to delay progress on the railways by interference by every possible means. Construction of the Victoria Line tube was being delayed because of the need to obtain authority. Its building would reduce the number of buses in service and allow street traffic to flow more readily.

The Earl of Airlie said that the railways had to be subsidised until they got going.

The only hope was to put air, road, and rail passenger traffic under one umbrella, de-nationalised if possible, and to get the best possible businessmen to head the organisation, even if it meant paying a top salary of £20,000 a year or more.

Wage Negotiating Machinery

Lord Burden said that he spoke as a former railwayman. The agreed wages negotiating machinery, made in 1921, was in the nature of a deal. At that time Sir Eric Geddes was keen on having a few working men on the boards of the railways. It was a question of railwaymen on the boards or agreed negotiating machinery. As one of the negotiating unions "we plumped for negotiating machinery." Since nationalisation there had been a substantial improvement in wages, salaries, and conditions. There was room for further improvements; the unions concerned were quite capable of safeguarding the interests of their members. Just at this moment morale was not heightened or maintained by constant nagging and ill-informed criticism in quarters which ought to know better. The commercial development of the main-line terminals was inhibited because the Commission was not permitted to engage in any building which was not strictly for operational purposes.

Railway Workshops

As regards the present modernisation plan, for 120 years the railway workshops in Britain had been making steam locomotives. While no doubt there were too many shops in operation, some 400, and the number might have been considerably reduced, the railways had, and still had, some of the most capable and efficient engineers in the country. Some of the British steam locomotives could not be surpassed in any other country. But turning over to diesel had brought its problems. The B.T.C. could not sack its men ruthlessly, as was done in some private enterprises because of a change in policy.

The railway workshops had been building the bodies for the diesel locomotives, and the engines and other component parts have been bought and assembled at the railway workshops. Every credit was due to the craftsmen in railway workshops, but they had been trained along different lines, and it was unfortunately true that breakdowns have occurred because of this policy. Now, he thought, some 50 diesel locomotives had been purchased from private-enterprise concerns because of the difficulties that had arisen.

Lord Merrivale said too much stress was laid on the estimated savings that could

accrue through branch line closures and too little on the provision of a public service. He urged more rapid electrification and the Electricity Authority reducing its prices. He asked whether the B.T.C. was extending the principle of unstaffed halts. No doubt the four-wheel diesel railbus could be improved. There was probably even greater room for development in the field of the bogie single-unit diesel railcar. As to long-distance fares—consideration should be given to the introduction of return fares at a slightly reduced rate.

Progress of Modernisation

Lord Chesham, Joint Parliamentary Secretary, Ministry of Transport, said there was no complacency, but rather a sense of urgency. The new Minister of Transport had already many consultations, besides visiting over 20 railway establishments since he took office. Freedom of choice for transport users had always been a corner stone of public policy. It was too early to say what the Government views might be on capital structure problems raised by the re-appraisal plan. Modernisation was going on as Lord Lucas wanted it and as the B.T.C. wanted it. It had also to go hand in hand with rationalisation. Since the outset of 1955, some 110 sections of line, involving 1,200 miles of railway, had been closed. At the same time there had been this continuing high level of investment in equipment, which was overtaking the backlog of many years of capital starvation.

As to the coastwise shipping problem, the Minister and he had begun to hold consultations with the Chairman of the Coastal Shipping Advisory Committee.

Since the British Railways standard type of A.W.S. was introduced in 1956 about 320 route miles of this equipment have been installed and 1,500 locomotives had been converted. It was hoped to equip a further 169 miles by early next year. It was a big task, but it was expected to be completed by the end of 1972.

As to question by Lord Lucas whether one should consider the railways as a commercial undertaking or whether the element of public service should be considered as the leading factor, he could not see that they need make such a positive differentiation. It was heartening that the system of joint consultation within the B.T.C. and the railway industry was well established and strongly supported. Any men leaving the railway were doubtless attracted by higher wages and more regular hours rather than anything else.

"We do not intend to fall down on the job of achieving the full and proper operation of the railways in our transport system," he concluded.

The motion was, by leave, withdrawn.

Questions in Parliament

Doric Arch and Great Hall at Euston

Mr. Woodrow Wyatt (Bosworth—Lab.) asked the Minister of Housing & Local Government on December 15 whether he would withhold his approval to the application now being made by the B.T.C. for immediate permission to demolish the Doric Arch and Great Hall of Euston Station, in view of the fact that Euston Station was the first railway station ever built in any capital city and was included in the statutory list of buildings of historic interest.

Mr. Henry Brooke, in a written answer: These buildings being on the statutory list, two months' notice of any proposal to demolish them must be formally given to the L.C.C., which must forthwith inform me. I understand that no such notice has been received by the Council. If it should be

received, both the Council and I will have an opportunity of considering whether to intervene.

Marshalling Yard at Stroud

Mr. J. A. Kershaw (Gloucester—C.) asked the Secretary of State for Air on December 16 when he expected to announce his decision concerning the transfer of his department's land at Gloucester to the B.T.C. for the new marshalling yard.

Mr. W. J. Taylor, Under-Secretary of State for Air, in a written answer: We are prepared to release this land if the Commission will pay for the re-provision elsewhere of certain essential facilities.

Changes in Train Times

Mr. Eric Johnson (Blackley—C.) asked the Minister of Transport on December 16 if he would give a general direction to the B.T.C. that, when a decision was taken to make drastic alterations in the timing of a train on any particular day, action should be taken to publicise this alteration through the B.B.C. and the Press, so as to prevent undue inconvenience to passengers.

Mr. Ernest Marples, in a written answer: No. This is a matter of day-to-day management for which the Commission is responsible.

B.T.C. and Urban Sites

Mr. Cyril Osborne (Louth—C.) asked the Minister of Transport on December 15 what general directions have been given to the B.T.C. as to the development of urban sites, in view of the potential profitability of such development.

Mr. Ernest Marples, in a written answer: None.

Bridge at London Bridge Station

Mr. R. Mellish (Bermondsey—Lab.) asked the Minister of Transport on December 16 whether he had considered proposals to erect a Bailey bridge for pedestrians stretching from London Bridge Station to Duke Street Hill.

Mr. Ernest Marples, in a written answer: This suggestion is being considered by the London Travel Committee and I expect its advice shortly.

Railway Superannuitants

Dame Irene Ward (Tynemouth—C.) asked the Minister of Transport on December 16 whether he would give a general direction to the B.T.C. to apply the Pensions Increases Act to railway superannuitants.

Mr. Ernest Marples, in a written answer: No. I must leave it to the B.T.C. to decide the extent to which circumstances permit further supplements to railway superannuitants.

Mr. Julian Risdale (Harwich—N.L.C.) asked the Minister of Transport on December 16 what further progress had now been made in the B.T.C. re-consideration of its pension supplement scheme; and if he would make a statement.

Mr. John Hay, Parliamentary Secretary, in a written answer: The Commission keeps its pension schemes constantly under review, and I am sure that any further supplementing of the prescribed rates must be a matter for the Commission's financial judgment.

Closed Stations' Alternative Services

Mr. Kenneth Lewis (Rutland & Stamford—C.) asked the Minister of Transport on December 16 whether he was aware of the inadequate public transport facilities serving many villages in Rutland and Lincolnshire due to the closure of stations by British Railways; and what future plans he had for dealing with this and similar problems in other rural areas.

Mr. John Hay, Parliamentary Secretary, in a written answer: The Committee on

Rural Bus Services set up by the Government is enquiring into the adequacy of rural bus services. It will take into account the withdrawal of railway services. We should await the committee's findings.

B.T.C. Regional Accounts

Mr. Percy Browne (Torrington—C.) asked the Minister of Transport if he would give a general direction to the B.T.C. to publish its accounts on a Regional basis, and to ensure that they were further broken down to show separate figures for goods and passenger traffic.

Mr. Ernest Marples, in a written answer: The Commission already publishes detailed statistics of receipts from passengers and freight originating in each Region and of operating costs. It has given a good deal of thought to Regional accounts, but there are considerable practical and other difficulties. Unless and until these can be overcome, I do not think that I could consider giving directions in this matter.

Contracts and Tenders

Electric locomotives for the Pennsylvania Railroad

General Electric, of Erie, U.S.A., has received from the Pennsylvania Railroad an order for 66 rectifier-type single-phase electric locomotives of 4,400 h.p. road-switcher type, the total cost of \$32,000,000 being paid under a lease arrangement. These are intended to replace the "P-5" class of 2-Co-2 freight locomotives built in 1932-35.

The £500,000 main contract for the new Piccadilly Station, British Railways, London Midland Region, has been awarded to Williamson Townson & Sons Ltd., the Bolton civil engineering firm. It is to be completed by the end of 1960 and will replace London Road Station. A nine-storey office block is included in the scheme.

The Swiss Federal Railways has awarded to Siemens & Halske A.G., Wernerwerk, Braunschweig, West Germany, a contract for the provision of power signalling at the new passenger station at Berne, the extensive work for which is now in hand. The installation comprises a supervisor's central panel controlling operating panels in signal-boxes at each end of the station; in times of light traffic the working of the east box can be taken over by the west box, leaving the former temporarily out of service. Optical type train number descriptors are being used, covering the working to and from the adjoining stations; the approach lines are to have automatic signalling. The outside equipment comprises 266 electrically-operated points, 339 light signals, and 491 distinct track circuit sections.

International Computers & Tabulators has received orders from three commercial concerns in France for its medium-sized general purpose computer, the I.C.T. type "1202." These are the first Continental orders for this type of computer. The capital value of the machines and ancillary equipment is some £60,000 in each case.

The British Transport Commission, South Wales Docks, has placed the following contracts:—

Stothert & Pitt Limited: supply and erection of nine electric cranes for No. 4 Quay, Kings Dock, Swansea

J. L. Kier & Co. (London) Ltd.: extension of "A" transit shed, Queen Alexandra Dock, Cardiff

Andrew Scott (Civil Engineers) Limited: construction of hydraulic pumping station

Staff and Labour Matters

N.U.R. Wage Claim

Following the rejection at the Railway Staff National Council of the claim submitted by the N.U.R. for a substantial increase in pay for railway salaried and conciliation staff, the union is to refer the claim to the Railway Staff National Tribunal.

In the *Railway Review* of December 25, The President of the N.U.R. states: "Arising from the pay review, we will not accept any argument that the industry cannot afford to meet the cost. . . . We should press that modernisation means not only the improvement in service but an improvement in the conditions of those employed in the industry."

L.T.E. Claim

London Transport officials meet with representatives of the N.U.R. on Wednesday next week to reply to a claim for a substantial wage increase for 19,000 workers.

and electrical sub-station, Kings Dock, Swansea.

British Railways, Eastern Region, has placed the following contracts:—

Brush Electrical Engineering Co. Ltd.: supply, delivery and installation of rotary frequency converter sets, standby diesel generator set, e.h.v. and m.v. cables, e.h.v. and m.v. switchgear and transformers for use with signalling systems between Gas Factory Junction, Barking and Upminster

Messrs. Johnson & Phillips Limited: supply, delivery and installation of e.h.v. and m.v. switchgear, transformers and cables for substations "A" and "B" at Colchester

Herbert Morris Limited: supply, delivery and installation of one 50-ton fixed electric goliath crane with 10-ton auxiliary lift and lifting beam for Southminster Goods Depot

South Wales Switchgear Limited: erection of equipment for 6.25-kV. feeder stations and track sectioning cabins for 50-cycle a.c. railway electrification and the supply and installation of earthing equipment, low tension a.c. connections, and other miscellaneous small wiring in buildings, in connection with electrification of the London, Tilbury & Southend Line

Clough, Smith & Co. Ltd.: supply, delivery and installation of e.h.v., m.v. and pilot cables, e.h.v. and m.v. switchgear, transformers and power factor correction equipment in connection with renewal work at 20 sub-stations in the Stratford Area

Samuel Butler & Co. Ltd.: repairs to underline bridges Nos. 1891 and 1892 at St. James Street Station.

British Railways, Scottish Region, has placed the following contracts:

Kinnear, Moodie & Co. Ltd.: maintenance work at car-ferry berth, Stranraer Harbour

Westinghouse Brake & Signal Co. Ltd.: lifting barriers at Blackford level crossing P. & W. MacLellan Limited: reconstruction of footbridge, Grant Street, Helensburgh

Kinnear, Moodie & Co. Ltd.: renewal work on overbridge, Craig Street, Airdrie.

British Railways, Southern Region, has placed the following contracts:—

Taylor Woodrow Construction Limited:

construction of oil fuelling station, Bricklayers' Arms

W. H. Gaze & Sons Ltd.: new car park, Brookwood Station

Winter & King Limited: repairs to subway, Waterloo Station

Maurice Hill Limited: repairs to engine shed, Nine Elms Motive Power Depot

Mould & Blyden Limited: installation of central heating and hot-water service, Hurst Green Station

The Cement Gun Co. Ltd.: repairs to concrete piles, Portsmouth Harbour

Durable Asphalte Co. Ltd.: asphaltting to walkways on roof, Waterloo Station

Caffin & Co. Ltd.: new boiler house, Wimbledon Park—Durnsford Road Repair Shop

Aubrey Watson Limited, reconstruction of bridge, Chard Junction

R. Corben & Son Ltd.: new staff accommodation, Dover Marine Town Yard

W. R. Payne & Sons Ltd.: repairs and renovations, Tilbury—Gravesend Ferry, Gravesend Town Pier pontoon

Taylor Woodrow Construction Limited: rebuilding of sawmill crosscut annexe, Eastleigh Carriage & Wagon Works.

Mines de Fer de Mauretanie (Miferma), of Boulevard Lannes, Paris, is inquiring for 14 line-service diesel locomotives and six diesel shunting locomotives.

The Special Register Information Service Export Services Branch, Board of Trade, has received calls for tenders as follows:—

From Pakistan:

1,000 metre-gauge covered jute wagons, four-wheel "MCJ" type, complete with body and underframe of riveted construction, wheels and axles, axleboxes, vacuum brake fittings, and draw and buffing gear, in dismantled condition crated and packed.

Tenders addressed to the Secretary, Railway Board, Ministry of Railways & Communications, Government of Pakistan, Karachi, must be enclosed in sealed covers endorsed "Tenders for M.G. 'MCJ' Type Wagons" and must reach the office of the Joint Director (Procurement & Development), Railway Board, Ministry of Railways & Communications, Room No. 302, 2nd Floor, Tughlaq House, Shahrah Kamal Ataturk, Karachi by February 2, 1960. The Tender Number is PRS-59/WAG/6/TDR. Local representation is essential. The Board of Trade reference is ESB/29014/59.

From India:

An unspecified quantity of 210-b.h.p. diesel locomotives.

The issuing authority and address to which bids should be sent is the Government of India, India Supply Mission, 2536 Massachusetts Avenue, N.W., Washington 8, D.C. This purchase will be financed from the Development Loan Fund through which the United States Government gives economic assistance to other countries. The tender No. is SE-107. The closing date is January 7, 1960. Copies of specifications and other documents relating to this call for tenders can be obtained from the India Store Department, Government Buildings, Bromyard Avenue, Acton, London, W.3. The above tender number should be quoted as reference. The Board of Trade reference is ESB/29885/59/I.C.A.

Further details relating to the above tenders together with photo-copies of tender documents can be obtained from the Branch (Laccon House, Theobald's Road, W.C.1.).

Notes and News

Diesel Locomotive Driver Killed by Cable Pole.—A diesel locomotive driver was killed on December 21, when his train ran into an electric cable pole which was leaning over the track between Pershore and Stoulton, British Railways, Western Region. The pole penetrated the driver's cab, killing him instantly.

St. Pancras-Bedford Accelerated Service Delayed.—Introduction by British Railways, London Midland Region, of the accelerated passenger service by diesel trains between London St. Pancras and Bedford, due on January 4, will be delayed for a week. This is because of delay in completing engineering works caused by a shortage of skilled building labour in the London area.

Stewarts and Lloyds Limited Improvement Maintained.—An unchanged 11 per cent total dividend by Stewarts & Lloyds Limited for the year 1958-59 is made up by the final 8 per cent. After depreciation of £3,394,000 (£2,874,000), trading profits, including investment income, are £11,077,000, against £14,265,000. Taxation takes £5,278,000 (£7,353,000) and the net profit is £5,448,000, compared with £6,642,000.

Longer Trains on L.T.E. Circle Line.—The scheme to lengthen all London Transport Circle Line trains from five to six cars is due to be completed by today (January 1). The additional cars increase the passenger-carrying capacity of the line by 20 per cent. Fourteen trains are used on the Circle service. Cars have been transferred from the District Line on delivery of new stock to the latter.

Toys for St. Mary's Hospital from the Western Region.—Mr. R. F. Hanks, Chairman, Western Area Board, and Mr. J. R. Hammond, General Manager, British Railways, Western Region, visited Paddington Central Enquiry Bureau before Christmas to see the toys made by staff and friends for children in St. Mary's Hospital at Christmastide. The toys were received by Miss K. G. Douglas, Matron. The accompanying illustration shows, from left; Miss C. Davenport, Supervisor, Central Enquiry Bureau; Sister J. Campbell, St. Mary's Hospital; Mr. C. J. Rider, Public Relations & Publicity Officer; Miss Douglas; Mr. Hammond; Mr. Hanks;

Mr. H. G. Roberts, Central Enquiry Bureau; Mr. F. E. Phasey, Assistant (Traffic) to Commercial Officer; and Mr. J. N. Parry, Head of Central Enquiry Bureau.

Alco Products Export Co. Inc. London Office.—The address in London of the Alco Products Export Co. Inc. is now 8, Grafton Street, London, W.1. The telephone Nos. are Hyde Park 4131-2-3; cables: Alprex London; and telegrams: Alprex Piccy London.

Collision in the Western Region.—The down main line between Plymouth and Penzance, British Railways, Western Region, was blocked for several hours on December 17, after a Paddington-Plymouth express ran into the rear of a diesel locomotive at Devonport Junction. Single line working was put into operation as engineers worked to clear the damaged locomotives. The driver of the diesel locomotive was treated for minor facial injuries.

Car Park Change at Moor Park Station, L.T.E.—The London Transport Executive has stated that because of engineering works in connection with improvements to the Metropolitan Line, the existing car park at Moor Park Station will be closed on January 4, and a new park for 65 cars opened the same day to replace it. This will allow the present car park in the station forecourt to be used for the delivery of engineer's materials needed for rebuilding the station and doubling the railway tracks in accordance with the modernisation scheme. The new car park adjoins the forecourt and is situated between South Approach and the railway line, where land has been cleared and surfaced. When the engineering works are finished the original car park will be reopened and the new part retained in use, giving the station room for more than 100 cars.

Fluidrive Hydraulic Coupling Patents.—On the hearing of a motion for judgment on December 18, in the Chancery Division of the High Court in an action between Fluidrive Patents Limited as plaintiffs, and Crofts (Engineers) Limited as defendants, Mr Justice Lloyd-Jacob made an order by consent restraining Crofts (Engineers) Limited from infringing the plaintiffs' Letters Patent No. 538043, which relate to hydraulic couplings, and ordered the defendants to pay £450 by way of agreed damages in respect of infringements of the Letters



Miss Douglas receiving toys from Mr. Hanks at the Central Enquiry Bureau, Paddington

Patent. The Judge further ordered the defendants within 14 days to deliver up to the plaintiffs upon oath all articles in their possession or power constructed in infringement of the Letters Patent and ordered the defendants to pay the plaintiffs their costs of the action.

Suggested Car Park Over Cannon Street Station.—The Common Council of the City of London is to enter into an arrangement with the British Transport Commission by which the new roof of Cannon Street Station, British Railways, Southern Region, may be made available as a car park for 525 cars and for possible future use as a helicopter station.

Bus Collides with Level Crossing Gates.—A single-deck bus skidded and crashed into the level-crossing gates at Ponders End on the Liverpool Street-Cambridge line, British Railways, Eastern Region, on December 22. One gate was smashed and the mechanism of the other was damaged. The track was cleared after 20 min. The bus, which was carrying no passengers was slightly damaged.

Withdrawal of Lambourn Branch Passenger Service.—Passenger trains are to be withdrawn from the Newbury to Lambourn Branch of British Railways, Western Region, on January 4. A goods service will be maintained between Newbury and Welford Park. Speen, Welford Park, Great Shefford, East Garston and Lambourn Stations, and Eastbury, Stockcross & Bagnor, and Boxford Halts will be closed to passengers. Goods traffic will continue to be handled at Boxford, Welford Park, and Newbury. Bus services operate in the area.

Labour Party Seeks Debate on Machine Tool Industry.—The Trade Union Group and the Economic Committee of the Parliamentary Labour Party are stated to have decided at a joint meeting to press for a debate in the House of Commons on the machine tool industry as soon as possible after the recess. Certain Labour M.P.'s are reported to be concerned at the findings of the Melman Report of O.E.E.C. and what are believed to be the findings of the report of the Department of Scientific & Industrial Research. Labour Members for some time, have been pressing the Government to publish this last report, but so far this has been resisted on the grounds that much of the information was given by individuals in the industry on the strict understanding that it would be kept secret.

Alterations in Services on Former G.C.R. Main Line.—Radical alterations in passenger services over the main line of the former Great Central Railway, now in the London Midland Region of British Railways, will take effect from January 4. Semi-fast trains will leave Marylebone on weekdays at 8.40 a.m., 12.40 (12.15 on Saturdays), and 4.30 p.m. for Nottingham Victoria, with departures from Nottingham at 8.40 a.m. and 12.25 and 5.15 p.m. These trains will stop at Aylesbury, Brackley Central, Woodford Halse, Rugby Central, Lutterworth, Leicester Central, and Loughborough Central. The 8.40 a.m. from Marylebone and the 5.15 p.m. from Nottingham will stop additionally at Harrow-on-the-Hill. All through trains between Marylebone and Sheffield, Manchester, and Bradford will be withdrawn. A train will leave Halifax at 8.30 a.m. and Huddersfield at 9.3 a.m. to Sheffield Midland, when the carriages will be attached to the 8.52 a.m. from Bradford Forster Square to St. Pancras, returning at 5.5 p.m. This "service will replace the "South Yorkshireman," now running between Marylebone and Nottingham Victoria, Sheffield Victoria, Huddersfield, Halifax

Town, and Bradford Exchange. Cross-country services via Woodford Halse and Banbury will not be affected.

Traffic Increase on Kent Coast Electrified Lines.—In the first six months after inauguration in June of electric traction between Gillingham and Sittingbourne, Faversham, Canterbury East, Dover, and Ramsgate, in British Railways, Southern Region, ticket sales in the newly electrified area were nearly one-third above those for the corresponding period of 1958; nearly 40 per cent more passengers arrived by rail in the area; and stations on the lines concerned earned £50,000 more than a year previously. That these increases were not caused by the exceptional summer weather is shown by figures for November. During that month ticket sales exceeded the sales for November, 1958, by over 30 per cent. and receipts at Rainham, Canterbury, and Sittingbourne were respectively 300, 100, and 40 per cent over the corresponding figures for the previous year.

New L.T.E. Metropolitan Line Timetable.—To facilitate punctuality during the quadrupling and electrification between Harrow and Amersham, London Transport Executive is to introduce on January 4 a new Metropolitan Line timetable providing for temporary increases in journey times while modernisation work is in progress. Speed restrictions necessitate increases in running times of 6-7 min. respectively for southbound fast and stopping trains, and of 8-10 min. for northbound trains between Harrow and Watford South Junction. There will be no reduction in the service north of Harrow. This has been made possible by allocating two additional trains to the total number previously required to give the full service, one being provided by London Transport and the other by British Railways, London Midland Region. Posters are being displayed at stations. A special Metropolitan Line bulletin gives travellers news of the modernisation works and informs them of the new timetable. It is displayed at nearly 80 different sites on 22 stations from Baker Street to Aylesbury. London Midland Region steam train services to and from Marylebone will be similarly affected. Bridge widenings are in progress at North

Harrow; at Marsh Road, Pinner; at Rickmansworth Road, Northwood; and at Amersham. Station reconstruction works have started at Northwood, Pinner and Moor Park. The main feature of the new timetable is diversion on Mondays to Fridays of some Aylesbury trains to run to and from Marylebone instead of Baker Street.

G.W.B. Furnaces Limited to Build New Steel Furnaces.—After the statement of Steel, Peech & Tozer Limited, recorded in our December 11 issue, that the company is to spend £10,000,000 developing what will be the largest electric steelmaking plant in the world, G.W.B. Furnaces Limited announces that it is to supply the first two electric furnaces for the project. These will be almost twice as large as any previously built in Great Britain.

Heavy Delays Caused by Pulling Communication Cord.—Two trains of British Railways, Western Region, were cancelled and 19 were delayed a total of about 9½ hr. up to 5.45 p.m., 2 hr. after a woman had pulled the communication cord in the 3.45 p.m. express to Fishguard, shortly after it had left Paddington during intensive traffic on December 22. She was in the train, seeing relatives off, when the train started, found that she had left her baby on the platform, and was told that Newport was the next booked stop. After the train was brought to a halt, a fault in the braking prevented it from starting again. After 45 min. the train was moved forward to Westbourne Park, where the woman alighted.

Passenger Service Withdrawals in L.M. Region.—Passenger train services between Northampton Castle and Market Harborough and between Northampton - Castle and Blisworth in British Railways, London Midland Region, will be withdrawn on January 4 because they are unremunerative. On the Northampton-Market Harborough line Brixworth and Lamport Stations will continue to deal with parcels and freight train traffic. Kilmarnock and Clipston & Oxendon Stations will be closed to all traffic except for private sidings at Kilmarnock. Parcels and goods will be dealt with at Market Harborough. On the Northampton-Blisworth line parcels and goods traffic will still be dealt with at

Prototype "Deltic" in North Eastern Region



The prototype English Electric "Deltic" 3,300-h.p. diesel-electric locomotive near York during performance test in the North Eastern Region of British Railways

Blisworth. The passenger service between Wigan North Western, Wigan Wallgate, Chorley, and Blackburn, also unremunerative, will be withdrawn from the same date. The stations to be closed are White Bear, Heapy, Brinscall, Withnell, and Feniscowles. Parcels and passenger train merchandise for Heapy will be dealt with at Chorley and for Brinscall, Feniscowles, and Withnell at Blackburn. Withnell will also be closed for goods traffic and full loads will be dealt with at Brinscall. Less than wagonload traffic will continue to be dealt with at Blackburn Bolton Road. Albion Station, between Birmingham New Street and Wolverhampton High Level, will be closed from February 1. Parcels and merchandise traffic will be dealt with at Birmingham New Street. Bus services operate in all the areas concerned.

Conference on Assessing Return on Capital.—A half-day conference on the problems associated with assessment of the ratio of return on capital is to be held on January 6 at the Recital Room, Royal Festival Hall, London. It is being organised by the Centre for Interfirm Comparison in association with the British Institute of Management. The speakers will include Dr. T. Barna, of the National Institute of Economic & Social Research, Mr. H. W. G. Kendall, of the British Federation of Master Printers, and Dr. J. M. S. Risk, of Risk & Partners Limited. Professor F. Sewell Bray will open the conference at 9.30 a.m., January 6, with a general introduction to the subject, followed by speakers at 9.45 a.m. The general discussion will begin at 11.45 a.m., with lunch at 1 p.m. Further information may be obtained from the British Institute of Management Limited, tel. Holborn 3456, ext. 13.

Forthcoming Meetings

January 6 (Wed.).—Electric Railway Society, at the Fred Tallant Hall, 153, Drummond Street, London, N.W.1, at 7.15 p.m. Talk by Mr. A. J. Rosser, on "Youth views Europe."

January 6 (Wed.).—Institution of Railway Signal Engineers, London Section, at the Institution of Electrical Engineers, Savoy Place, W.C.2, at 6 p.m. Paper on "The electrical properties of concrete sleepers," by Mr. E. Morgan, British Railways Research Centre.

January 7 (Thu.).—Institution of Electrical Engineers, at Savoy Place, London, W.C.2, at 5.30 p.m. Second Hunter Memorial Lecture, "The protection of electrical systems," by Mr. H. G. Bell.

January 7 (Thu.).—Railway Correspondence & Travel Society, Bristol & District Branch at the Grosvenor Hotel, Bristol, 1, at 7.15 p.m. Paper on "Operating and signalling in the Bristol District," by Inspector R. Wellman.

January 11 (Mon.).—Permanent Way Institution, London Section, at the Headquarters of the British Transport Commission, 222, Marylebone Road, N.W.1, at 6.30 p.m. Discussion "Keeping tracks to line and level," by Associate Members.

January 11 (Mon.).—Institute of Transport, London Section, at the Jarvis Hall (R.I.B.A.), 66, Portland Place, W.1, at 5.45 p.m. Paper on "The problem of the peak," "Rail," by Mr. P. A. White, Line Traffic Manager, South Eastern Division, British Railways, Southern Region; "Road," by Mr. A. F. Neal, General Manager, Manchester Corporation Transport.

January 12 (Tue.).—Permanent Way Institution, York Section, in the Railway Institute, York, at 6.45 p.m. Paper on "Leeds City Station Modernisation," by Mr. W. E. Waite, District Operating Superintendent, Leeds City, Mr. H. C. Steeples, Assistant Engineer, New Works, Chief Civil Engineers' Office, York.

January 13 (Wed.).—Institution of Railway Signal Engineers, York Section, at the Signalling School, Toft Green, York, at 5.30 p.m. Paper on "Modern trends in the design of signalling apparatus," by Mr. E. J. Harris, Westinghouse Brake & Signal Co. Ltd.

January 13 (Wed.).—British Railways, Southern Region, Lecture & Debating Society, at the Chapter House, St. Thomas Street, S.E.1, at 6 p.m. Paper on "Transport treasures," illustrated, by Mr. J. Scholes, Curator of Historical Relics, British Transport Commission.

January 14 (Thu.).—British Railways, London Midland Region, Lecture & Debating Society, at the Clerical Staff Dining Club, Cardington Street, Euston, N.W.1, at 5.45 p.m. Domestic debate.

January 14 (Thu.).—Institute of Transport, East Midlands Section, at the Mechanics Institution, Nottingham, at 1 p.m. Paper on "Road haulage then and now 1933-59," by Mr. G. W. Quick-Smith, Adviser (Special Projects), British Transport Commission.

January 15 (Fri.).—Railway Correspondence & Travel Society, London Branch, at the Railway Clearing House, Eversholt Street, N.W.1, at 7.15 p.m. Lantern slides. "Several years of railway photography," by Mr. E. R. Wethersett.

January 16 (Sat.).—Permanent Way Institution, East Anglia Section, at Cambridge, at 2.15 p.m. Paper on "Work study in the Cambridge District," by Mr. C. A. Farey.

Railway Stock Market

Strength of industrial shares continued to be a feature of stock markets right up to the close of the year, and yet another all-time peak was reached by the *Financial Times* index of industrial ordinary shares. There was only very minor interest in foreign and other railway stocks. On the other hand, the shares of locomotive builders, engineers and allied companies moved higher in sympathy with the general trend in industrials. The fresh advance was touched off by the Government's proposal to extend the powers of trustees so they can invest in high class equity shares. Apart from the further rise in share values, the effect of this news was to cause a sharp decline in British Funds and an easier tendency in fixed-interest securities generally. This was because it is assumed that, when the powers of trustees have been widened, there may be still more selling of these securities so as to switch into equity shares. This view may, however, prove to be much exaggerated, bearing in mind that many leading equity shares are at levels which indicate only very moderate yields.

Among foreign rails, Antofagasta ordinary stock was firmer at 17 and also the preference at 31. The 5 per cent (Bolivia) debentures showed business ranging from 96½ to 98½. Chilean Northern 5 per cent first debentures have marked 60, and Guayaquil & Quito assented bonds 80½. Paraguay Central prior debentures changed hands at 14, and there were a number of deals around 20½ in Costa Rica ordinary stock. In other directions, Brazil Railway bonds showed business up to the higher level of 8½.

Nyasaland Railways shares marked 10s. 6d. and the 3½ per cent debentures 53½. West of India Portuguese capital stock was dealt in up to 109½; the 5 per cent debentures marked 92. Mexican Central "A" bearer debentures firmed up to 55½. United of Havana second income stock was 6 and the consolidated stock changed hands around 7. San Paulo Railway 3s. units were 1s. 6½d. Among French railway sterling bonds, Midi 4 per cents were 84½.

Canadian Pacifics strengthened to \$46½, but the 4 per cent preference stock eased to £59½ and the 4 per cent debentures were £66½. White Pass shares were \$13½.

Wagon Repairs 5s. shares firmed up to 11s. 9d., Gloucester Wagon 10s. shares were 15s. 3d., and Beyer Peacock 5s. shares 8s. 7½d. at which the yield is nearly 6½ per cent, while North British Locomotive have been firmed at 9s. 3d. and Birmingham Wagon were 29s. 1½d. G. D. Peters changed hands up to 20s. 10½d., while Westinghouse Brake were at a peak of 57s. Charles Roberts 5s. shares were 18s. 6d.

Ruston & Hornsby at 34s. lost a small part of their recent sharp advance. Associated Electrical were 60s., General Electric 43s. and English Electric 50s. 3d. There is widespread talk in the City that in due course proposals may be made to merge the aircraft interests of English Electric and Vickers. Vickers shares have moved up to 35s. 1½d. John Brown were good at 51s. 6d., Babcock & Wilcox better at 45s. 3d. and Stone-Platt 60s. Machine tool shares attracted, too, at higher prices, with Alfred Herbert at a new peak of 56s. 6d., Asquith 5s. shares 17s. 7½d. and Craven Bros. 5s. shares 13s. 6d. Among other shares, Broom & Wade were good at 29s. 1½d., Pollard Bearing 4s. shares 37s. and Ransomes & Marles 5s. shares 24s. 6d. Davy-United were 112s. 9d. and Power Gas Corporation 10s. shares 80s.

Pressed Steel 5s. shares rose to a new high of 45s. 3d. and Dowty Group 10s. shares were 47s. 6d. B. I. Cables were 58s. 3d. and Johnson & Phillips 18s. 9d. Crompton Parkinson 10s. shares have been firm at 17s. 6d. xd. Lancashire Dynamo advanced 13s. to 62s. following the news of the terms of the take-over offer (which is worth £9½ million) made by Metal Industries. Metal Industries shares were 72s. 6d.

OFFICIAL NOTICES

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TENDERS are invited for the supply of 100 two-man motor trolleys. The specification does not call for the supply of engines and controls, belts, wheels, axles, bearings, gongs, lighting equipment and generators which will all be supplied and fitted by the Department in New Zealand.

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